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Certain Criteria in the Qualifications and Preparation of Health Officers*

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THE United States is faced with certain special problems in the selection of qualified health officers. The country contains regions so different in geographical conditions, resources, interests, and types and concentration of population, that its public health problems are diversified. The autonomy of our state and local governments in matters of health makes it difficult to obtain the adoption of uniform standards for the selection of health officers. The traditional association of public office with political preferment rather than with qualifications for efficient service has hindered progress and discouraged many persons of high caliber from entering governmental employment.

There are certain advantages in the autonomy of state and local governments which may counteract the benefits of the uniformity created by centralized federal control. Local responsibility, when it is assumed by skillful, conscientious leadership, encourages initiative and tends to develop higher standards than can usually be attained under remote governmental control; but where the people of a community are uninformed as to the qualifications necessary for efficient service, or where appointments of professional personnel remain on a political basis, autonomy is a liability rather than an asset.

Much progress has been made in the past few years in stabilizing the profession of public health and in crystallizing opinion concerning the qualifications of those who are to enter the profession. Educational facilities have been extended and improved and opportunities have been provided for an increasing number of individuals to take advantage of these facilities.

* Read at a Special Session of the Committee on Professional Education of the American Public Health Association at the Sixty-sixth Annual Meeting in New York, N. Y., October 7, 1937.

EDUCATIONAL STATUS

In order to obtain some estimate of the present educational status of the health officers of the country I have made a summary of the professional degrees and certificates held by state and insular health officers, by whole-time county and district health officers, and by the whole-time and part-time health officers of cities of 10,000 or more population, as reported for 1936 by the United States Public Health Service,[1, 2, 3] While the mere possession or lack of a professional degree cannot be taken as a measure of the efficiency of a health officer, it does give some indication of his accredited educational equipment.

The analysis of the degrees and certificates held by state and insular health officers is shown in Table I. All of these health officers hold a medical degree and 12 of the 55, or 22 per cent, hold an additional public health degree. It is obvious from this analysis that the states recognize the importance of a medical education as a qualification for the directors of their central health organizations. Many of the state health officers who do not hold an additional public health degree have had long experience in public health and are among our ablest leaders in this field. These men have so firmly established themselves by their accomplishments that political influences usually cannot remove them from office. Many states require the appointment of highly qualified state health officers, and in some cases nominations for the position are made by nonpartisan boards, thus insuring the selection of qualified individuals. It is to be hoped that in the near future legislation and custom will remove the appointment of all state health officers from political control. These positions are the keystones in the American system of local health administration, and the future success of this system depends largely upon the stabilization of state health officials on a high plane of efficiency.

TABLE I

Number and Percentage of State and Insular Health Officers Holding Various Degrees, 1936

Degree	*Number*	*Per cent*
M.D.	43	78.2
M.D. + C.P.H.	6	10.9
M.D. + D.P.H.	1	1.8
M.D. + Dr.P.H.	5	9.1
Total	55	100.0

The analysis of the degrees and certificates held by whole-time county and district health officers (Table II) shows that, of the 574 officers listed, 87.5 per cent hold a medical degree alone, and 12 per cent hold a public health degree in addition to a medical degree. Only 3 full-time county health officers lack a medical degree, 1 of whom holds a bachelor of science degree in public health, 1 a master of science degree alone, and 1 no degree. It is probable that a majority of the full-time county health officers holding medical degrees alone have received some kind of postgraduate instruction in public health, and under the present arrangements sponsored by the U. S. Public Health Service most of the others who can benefit by such instruction will undoubtedly receive it in the near future.

TABLE II

Number and Percentage of Whole-time County Health Officers Holding Various Degrees, 1936

Degree	*Number*	*Per cent*
M.D.	502	87.5
M.D. + Public Health	69	12.0
B.S. or M.S.	2	0.3
No degree	1	0.2
Total	574	100.0

The analysis of degrees and certificates held by city health officers is

shown in Table III. It is divided into cities having a population of 50,000 or more, and those having a population of 10,000 to 50,000. Among 191 cities of 50,000 or more population the analysis shows that 69 per cent have whole-time health officers, 31 per cent have part-time. Among the 131 whole-time health officers 74 per cent hold a medical degree without a graduate degree in public health, 13 per cent a medical and a public health degree, 2 per cent a public health or sanitary engineering degree without a medical degree, 2 per cent a veterinary or pharmacist degree, and 8 per cent no degree. Among the 60 part-time health officers, all hold medical degrees and 1 an additional public health degree.

TABLE III

Percentage of City Health Officers Holding Various Degrees, 1936

	Cities of 50,000 and Over Population		*Cities of 10,000 to 50,000 Population*	
	Whole-time	*Part-time*	*Whole-time*	*Part-time*
Number of health officers	131	60	290	433
Per cent whole-time or part-time	68.6	31.4	40.1	59.9
Degree				
M.D.	74.0	98.4	44.1	89.0
M.D. + Public Health	13.0	1.6	11.0	0.9
Public Health or Engineering	2.3	0.0	1.7	0.2
Other Degrees	2.3	0.0	3.1	1.4
Regist. Nurse or Public Health Nurse	0.0	0.0	2.1	0.2
No Degree	8.4	0.0	37.9	8.3
Total	100.0	100.0	99.9	100.0

The analysis for 723 cities having a population of 10,000 to 50,000 shows that only 40 per cent of these cities have whole-time health officers while 60 per cent have part-time. Among the 290 whole-time health officers 44 per cent hold a medical degree alone; 11 per cent a medical degree and a public health degree; 2 per cent only a degree in public health or sanitary engineering; 3 per cent a veterinary, optometrist, pharmacist, or other graduate degree; 2 per cent are registered nurses or public health nurses; and 38 per cent hold no degree. Among the 433 part-time health officers, 90 per cent hold a medical degree, 4 of which are supplemented by public health degrees, 2 per cent hold other degrees, and 8 per cent hold no degree.

A further statement is necessary concerning the status of city health officers who hold no degree. Among the cities of 50,000 or more population there are 11 in which the person designated as health officer holds no degree. Eight of these have the official title of health officer or its equivalent. The other 3 have the official title of clerk, agent, or executive officer of the board of health. Among the smaller cities there are 146 in which the person designated as health officer holds no degree. Of these, 75 per cent have the official title of health officer or its equivalent, the others have various titles, such as clerk, agent, sanitary inspector, or chief of police. Thus the large majority of these officials are considered health officers, and although a few of them may hold an academic degree which is not mentioned in the report, it is probable that most of them do not possess the professional qualifications necessary for an efficient

health officer. Seventy-seven per cent of the health officers possessing no degree are in 3 northeastern states. This indicates that there must be special circumstances in these states responsible for the selection or designation of non-professional persons as health officers. In one a bill requiring the appointment of highly qualified city health officers has been defeated in the legislature every year for a number of years; in 1 there is a licensing law for health officers which does not require adequate academic qualifications; and in 1 the state health department is handicapped by political influences. It would seem advantageous for every state to possess a statute requiring professional qualifications of city health officers as well as of all other public health personnel within its jurisdiction.

In communities having poorly qualified official public health personnel, it is probable that much of the public health program is carried on in an uncoördinated manner by voluntary organizations, sometimes in the face of opposition from the intrenched and inadequate official agency. It is reasonable to ask whether such communities are not deluded by a false sense of security with regard to the health of their people, whether they really know the amount of preventable disease in their midst, and whether they are not wasting both tax money and voluntary contributions by failure to unify the work under full-time qualified personnel.

Most cities of 50,000 or more should be able to meet the financial requirements for employing a well qualified full-time health officer, but in smaller cities this is often impossible. The difficulty, however, can be solved by combining the full-time health service of such cities with that of neighboring towns or the surrounding rural area. This arrangement, which has already proved successful in a number of localities throughout the country, offers the additional advantages of unifying effort in communities having common interests and of creating a spirit of coöperation where unpleasant rivalry might otherwise exist.

BASIC QUALIFICATIONS

The necessary qualifications of an efficient health officer may be divided into personal, preliminary educational, and professional. The most important personal qualifications are integrity, leadership, and administrative ability. These are assets which should be possessed by any person who is to occupy an influential administrative position in a community.

The preliminary educational qualifications of an efficient health officer are those required of anyone who is to meet all classes of people in the community on an equal footing. The broader this educational background is the better prepared the health officer will be to deal wisely with the complex problems involved in the health of the community. Many human ills lie largely outside the realm of technical procedures and require a broad outlook for their correction. The most recent trend in college education is toward the preparation of students for intelligent citizenship, with a background of history, language, the sciences and the arts, and such a background the health officer should have.

Professional qualifications must, of course, be developed on the foundation of general education, continuing certain subjects which were started in the preliminary educational period and adding the more technical subjects which enter into public health practice. This is the function of schools of medicine and public health.

The two most important fields of study in the educational equipment of the health officer are the biological sciences and social sciences. In the

social sciences he should have adequate preparation in psychology, sociology, economics, and government. Elementary instruction in these subjects should be received in the preliminary educational period, and this should be followed up in the period of professional study by courses on the special phases of these subjects which are related to public health.

In psychology the health officer must deal with the normal and abnormal reactions of individuals, organizations, and communities, and he must be able to influence them into action. In sociology he must understand heredity, racial problems, population trends, urban and rural relationships, and crime. In economics he must be able to get the most out of his limited budget and he must understand the financial problems of the industrial or agricultural groups of his community. In government he must understand the philosophy and machinery of national, state, and local government, must protect his program against political manipulation, and must know his legal rights and limitations.

An adequate background in the biological sciences is, however, the essential element in the educational equipment of the health officer. Certainly no one can approach health problems intelligently without an appreciation of human and environmental biology. Elementary instruction can be obtained in the introductory courses in general biology offered in colleges, which include the fundamentals of botany, zoology, evolution, and heredity. This is logically followed by a course in vertebrate anatomy and embryology such as is required of premedical students. These courses are merely a foundation for the study of human biology and should be followed by courses in the basic medical sciences, namely, human anatomy, biochemistry, physiology, pathology, and bacteriology. These provide a familiarity with the normal and pathological conditions of the human body, and its reactions to environment and invading microörganisms. Such a biological background has been considered by some to be adequate for a health officer, but if he is to be fully equipped for his work he should also be familiar with the fundamentals of clinical medicine, surgery, pediatrics, obstetrics, and psychiatry, all of which are intimately related to public health.

THE MEDICAL DEGREE

A word may be said concerning the requirement that all health officers should possess a medical degree. Obviously, the mere possession of such a degree without administrative ability, personal qualifications, and a knowledge of the principles of public health does not qualify a person to be a health officer. Too often in the past poorly qualified physicians have been appointed because of personal or political friendships, and it is these appointments which have occasioned criticism. Such physicians, however, have failed in spite of a medical degree rather than because of it. Graduates in medicine certainly possess administrative and personal qualifications comparable to those of other educational groups, and because the medical degree places the health officer in a position of equality and professional intimacy with the physicians of his community, there is every reason for taking advantage of the increasing supply of young men possessing a modern medical background. This advantage is all the greater in view of the fact that preventive medicine and public health are becoming major subjects in the undergraduate medical curriculum.

This reference to the advantages of utilizing medical graduates as health officers should not be interpreted as excluding from consideration well quali-

fied persons who do not possess a medical degree. By this I mean persons who have completed the basic medical sciences followed by 2 years of academic instruction in public health and a period of field experience. One so equipped may become an able administrator in public health, but it should be recognized that his field of activity may be limited to communities in which he can employ graduates in medicine to supervise the medical activities of his department. In view of such possible limitations it is advisable to recommend that all persons looking forward to a career as a public health officer should obtain a medical degree prior to postgraduate instruction in public health.

POSTGRADUATE INSTRUCTION IN PUBLIC HEALTH

Whether or not a candidate possesses a medical degree, he must supplement his general background by the technical training furnished by a postgraduate course in public health if he is to become fully qualified. The subjects usually required in schools of public health are biostatistics, epidemiology, public health administration, public health bacteriology, sanitation of water, sewage and foods, communicable diseases and nutrition. In addition, instruction should be given in mental hygiene, health education, governmental organization, and social work. Subsequent to intramural instruction there should be practical field instruction in a well organized health department under adequate supervision.

It would be ideal if all states and local communities could now require a full year of postgraduate study as a qualification for health officers. It should be required by all states at least for the professional personnel of their central organizations. For small cities and rural areas, however, a reasonably efficient full-time public health service may be developed by the employment of medical graduates who have received shorter postgraduate instruction. Such short courses may take the form of orientation in all the important phases of public health work, or they may cover the work of one term in a course leading to a certificate or master's degree in public health. The orientation type of course is also valuable for physicians who have acted as health officers for a number of years without previous academic instruction in public health, but who are too old to be admitted to courses covering a full academic year. Younger men who take such an orientation course should be given the benefit of a full year of postgraduate instruction at a later time if their record of service warrants it.

NEEDS AND OUTLOOK FOR THE FUTURE

The present educational needs for the professional preparation of health officers in this country include both an improvement and expansion of the facilities for extended postgraduate study and a continuation and strengthening of short courses of instruction. As the immediate demand for full-time health service becomes satisfied, the shorter periods of instruction will be replaced by courses of adequate length, and every effort should be made to hasten this development.

Meanwhile, replacement of nonprofessional health officers should be encouraged, minimum standards should be raised, and information should be given to communities which will assist them in improving and stabilizing their public health personnel. States can encourage their local communities along these lines by enacting legislation requiring the appointment of qualified personnel, by educating local governing bodies, and by subsidizing full-time local health service.

Legal requirements for the selection of health officers, such as age, residence,

civil service, professional degrees, and practical experience, as well as procedure in making appointments, are matters determined by statute and will always differ to a certain extent in various states and communities. They are pertinent to this discussion only in so far as they set limitations which will affect the selection of persons having the best qualifications.

As long as states and local communities retain a relative degree of autonomy they will set their own standards and select their own health officials. A few will probably retain archaic requirements of residence or even political affiliation, and will thus automatically limit the possibility of securing the best service. Others will develop a career service based upon the best obtainable personnel, and will provide their appointees with opportunities for security, advancement, adequate remuneration, and further education, which will bring rewards to the people in the form of better health.

Standardization will limit progress and should be avoided, but an agreement should be reached as to the basic principle that every community should be provided with an adequate full-time health service, under the direction of a highly qualified health officer who is free from political domination. On such a foundation professional standards can constantly be raised to meet the increasing demands for more efficient service. The United States contains a wealth of material for this movement, which only asks that the door of opportunity be opened and a successful future promised in order to produce results which will assure continuous improvement in our national health.

REFERENCES

1. Directory of State and Insular Officers, 1936. *Pub. Health Rep.*, 51:1460-1478 (Oct. 23), 1936.
2. Directory of Whole-time County Health Officers, 1936. *Pub. Health Rep.*, 51:1160-1170 (Aug. 21), 1936.
3. City Health Officers, 1936. *Pub. Health Rep.*, 51:1575-1592 (Nov. 13), 1936.

Rural Health Services

"THE survey of rural health services in the United States for the calendar year 1936 showed that there was a net gain of 331 in the number of counties under full-time health administration over the number reported for the previous year. The total number is now in the neighborhood of 1,000. There are now 6 states in which all counties are served by full-time county or district health units, as compared with 3 so organized at the close of the calendar year 1935. The percentage of the total rural population now enjoying this service is estimated at 41.7 per cent. It has been interesting to note in a number of states a trend toward utilization of the district plan to a greater extent in the organization of local health service. In spite of these highly encouraging facts, however, there are still 10 states which do not have any local health service corresponding to the generally accepted standards implied by this term."—From "A Brief Review of Progress in the Public Health Program under Title VI of the Social Security Act." C. E. Waller, Assistant Surgeon General, U. S. Public Health Service—*The Health Officer*, February 1938.

The Physician's Statement of Cause of Death*

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THE physician's statement of cause of death is an important scientific document. It provides information respecting past medical and public health experience, and signposts to problems affecting the health and longevity of our people now and in the future. Accurate mortality records are of great sanitary importance, and progress in medicine and public health has been substantially furthered by them. In the future, too, further guidance in public health will be expected from these records. It is therefore important that every effort be made to improve the reliability and accuracy of statements on the medical certificate in such a fashion that official data will likewise become more accurate and thus more valuable.

There are 3 aspects of medical certification to which we should give special thought: (1) the education of physicians and medical students in the principles and practice of death certification, (2) the form of the questions relating to cause of death, and (3) the statistical practices to which medical statements are subjected when the data are being tabulated.

EDUCATION OF THE MEDICAL PROFESSION IN DEATH CERTIFICATION

Every physician appreciates in a general way the importance of the collection, tabulation, and analysis of mortality statistics. It is doubtful, however, if many of them realize the importance of care and judgment in making their statements. It was with this in mind that the Commission revising the *International List of Causes of Death* in 1929 expressed the opinion that "it was of the utmost importance that medical practitioners and medical students be given special instructions as to the principles governing death certification." The achievement of accurate statements which reflect physicians' considered opinion, depends first upon physicians understanding clearly the significance of the questions relating to cause of death and the general principles upon which death certification is based. Official records can never be more accurate than the statements of medical practitioners, no matter what conventional treatment of them be employed. Education of the profession, particularly medical students, in the purpose and use of the medical certificate is therefore a first essential. A beginning in this respect has been made in Canada through the introduction of an exercise on medical certification as part of the instruction

* Read before the Vital Statistics Section of the American Public Health Association, at the Sixty-sixth Annual Meeting in New York, N. Y., October 5, 1937.

in 6 medical schools.[1] Undoubtedly this effort will aid substantially in improving medical certification in Canada in the future.

What does the physician need to know to enable him to complete a satisfactory medical certificate? He must first understand clearly what is meant by "cause of death" for statistical purposes. This is defined as "the disease or injury which initiated the train of events leading to death," and it is this entity of which a clear indication is desired. This definition is designed so that medical records may serve to direct attention to the point at which preventive measures may best be applied. Detailed statements are not desired, a single entry being preferable in all cases where this can be regarded as adequate. The physician's statement of cause of death is not intended to be an abstract of the clinical history and pathological findings. Detailed studies in any case can and should always be made on samples where greater reliability may be attached to such detail, as in hospitals. Death certificates should be expected to contain merely a clear, authoritative, scientific, and logical expression of medical opinion as to the cause of death. An entry of several morbid conditions or states has, of course, no particular disadvantage from the medical or statistical standpoint if they are presented in logical order and without ambiguity.

Given a clear understanding of what is meant by "cause of death" for statistical purposes, it is then necessary that physicians be well acquainted with the significance of the questions relating to cause of death, whatever form they may take, so that they may avoid the many common errors and not obscure their statements by incorrect entries.

"The writing of a satisfactory death record is often a matter of no small difficulty," but "a considerable service can be rendered to the preventive medicine of the present and of the future by each physician, surgeon, and pathologist who endeavors to produce correct and complete mortality and notification records."[2] Time can surely be found to impress these things upon every medical student before graduation.

FORM OF THE QUESTIONS RELATING TO CAUSE OF DEATH

The medical certificate "should be so planned as to give the physician the opportunity of clearly expressing his opinion as to the cause of death in each individual case."[3] At the same time, the order of statement needs to be such as to separate contributory causes which *are related* to the disease causing death (secondary or complicating conditions), and those which are considered contributory factors in causing death but entirely *independent* of the underlying condition responsible for the fatal outcome. Given such a method of orderly statement and the coöperation of the medical profession, it should be possible to eliminate almost entirely the use of arbitrary rules and also to dispense with a request for duration or date of onset which has little or no scientific accuracy in most cases when recorded anyway.

From the national viewpoint it matters not what form the medical questions take in another country, but in each country individually this question should be regarded as one of special importance. At present there are almost as many editions of the medical certificate as there are countries using the *International List*. This is undoubtedly an important factor in limiting international comparability of records apart entirely from variation in rules of choice for joint cause selection. Indeed, even were the latter uniform it would be impossible to expect much

in the way of reliable comparisons if certifying practice and the form of the medical certificate still varied. A signal achievement lies in the van of measures directed toward the adoption by all countries using the *International List,* of questions relating to cause of death which are either the same or essentially similar in character.

The existence of so many different types of questions in the medical statement of cause of death the world over bespeaks dissatisfaction with probably most of them. Dissatisfaction in Canada was general long before the study of the phraseology of the medical questions was initiated in 1933. In France, Germany, and Holland only "cause of death" is requested, and it is not intimated that more than one entry would ever be appropriate, nor is instruction given for the certifier's guidance in selection of that single cause. In Japan the certifier is specifically instructed to make only a single entry, but instructions for his guidance are given. There is no evidence, however, that the physician has intelligently applied his instructions and, furthermore, there is no possibility of tabulating more than one cause.[4] In Canada until 1935, and in the United States until 1930, two questions were included, namely: "Cause of Death," and "Contributory (secondary) Cause." In England and Wales until 1927 the form called for "Cause of Death" and "Secondary (Contributory) Cause."

In Sweden the form provides for principal and contributory causes, suggesting that in some cases it may be appropriate to indicate more than one cause, the interrelation being one of importance. The relationship most frequently called for in other countries is one of causation, but prior to the revision of the medical certificate in the years noted above in England and Wales, the United States and Canada, the forms called for statements of causal relationship and then obscured the issue by indicating that the statement might alternately be one of importance. Thus relationship of causation and importance were thoroughly confused.

When multiple causes are stated, two relationships between jointly stated causes of death, namely, of importance and of causation, are of interest to those tabulating returns. The medical certificate used in Switzerland (Figure III) illustrates this in making provision for (a) primitive disease or primary cause, (b) consecutive disease and immediate cause, and (c) contributory diseases or circumstances worthy of mention.

From the physician's point of view the form of the questions should be logical and convenient to his memory, and *from the statistician's viewpoint*

CAUSE OF DEATH	
Principal Cause	
Immediate Cause	1. .....
Causes antecedent to above in order of relationship	due to 2. .....
	due to 3. .....
	due to 4. .....
Independent contributory causes, if important (not causally related to principal cause)	.....
	.....

FIGURE I

should clearly separate those causes which are related and those causes which are independent of the disease responsible for death and to which death should be attributed.

DEVELOPMENTS IN RECENT YEARS

The report of the committee entrusted with the Study of Causes of Death in its report to the Health Organization of the League of Nations in 1925, suggested the certificate reproduced in Figure I.[4]

Immediate principal cause was defined as the morbid condition actually causing death, and causes antecedent to it, any others of which it was the consequence. If multiple causes were recorded, the order of relationship would be indicated thus: (1) bronchopneumonia, (2) measles; (1) acute peritonitis, (2) intestinal perforation, (3) typhoid fever. This form begins at the proximal end of the train of causation rather than at the "primary cause" and thus assures a statement of the cause required for tabulation.

The committee indicated that in most instances it would be sufficient to state the principal cause, "reserving statement of contributory causes for instances where the deceased succumbed to a combination of maladies none of which would necessarily have been fatal alone." In such cases the certifier's judgment alone can indicate the cause which should be selected for tabulation.

The present difficulties and present statistical practices arise largely because the information for making an intelligent selection for tabulation is not obtained from the certifier. It is therefore necessary to substitute certain general rules which may or may not apply in any given case. This form, as can be readily seen, establishes both the relationship of importance and of causation, and provides an opportunity for the physician to set forth clearly his opinion. It would appear to make it possible to dispense almost entirely with rules of selection and ultimately to form simple rules, in each case based on the certifier's opinion as expressed in his statement.

It is noteworthy that in 1927 a medical certificate similar in outline to that suggested in the committee's report was introduced in England and Wales (Figure II). Following the introduction of this form, selection according to the usual plan was continued, but late in 1935 it was recommended that beginning in 1941 the selection of the causes of death for tabulation be based on the certifier's viewpoint as expressed on the certificate, in place of selection by rule.[5] Thus it has been shown that the new form of statement is a satisfactory one and that this, the original objective, first despaired of,[6]

CAUSE OF DEATH

I

Immediate cause * (a) .....

due to

Morbid conditions, if any, giving rise to immediate cause (stated in order proceeding backwards from immediate cause) (b) ..... due to (c) .....

II

Other morbid conditions (if important) contributing to death but not related to immediate cause. .....

* This does not mean the mode of dying, such as, e.g. heart failure, asthenia, etc.: it means the disease, injury or complication which caused death.

FIGURE II—ENGLISH FORM

MEDICAL DECLARATION OF CAUSE OF DEATH—SWITZERLAND

(a) Primitive disease or primary cause .....
(b) Consecutive disease and immediate cause of death .....
(c) Contributory diseases or circumstances worthy of mention .....

FIGURE III

will be achieved within 15 years of the introduction of the new certificate. It would appear, therefore, that the recommendation of the Commission revising the *International List* in 1929 [3] is possible of achievement, namely: "that the certificate of death should be planned so as to show as exactly as possible the opinion expressed by the physician on the cause or causes of death in each individual case, and to limit as much as possible the selection by the Central Bureau entrusted with the classification of the cause of death."

As the certifier is given a free hand to trace the pathological history of his patient, some will push this matter much further than others. Some will be satisfied with recording cerebral hemorrhage as the cause of death; others will record arteriosclerosis as the cause of the hemorrhage; and still others may mention the septic or other cause to which they attribute the arteriosclerosis. The international adoption, in principle at least, of such a certificate as that proposed by the League of Nations Study Committee cannot, therefore, be expected to dispense completely with the need for agreement on certain points of detail. Such deaths are all essentially similar in nature and should be grouped together. It would not do to assign some of them to cerebral hemorrhage, others to arteriosclerosis, and others to the condition recorded as the cause of the arteriosclerosis. It would be necessary to agree upon the point at which such chains of causation should be severed for statistical purposes.

International agreement should be easier to attain in respect to such conventions than upon rules of selection such as we now have. Today, we assume that we do not know what the physician's opinion is regarding the relative importance of the causes stated and classification carried on in this fashion necessarily leaves much room for differences of opinion and criticism.

CANADIAN EFFORTS

In 1935 a new form of medical statement was introduced in Canada. This is almost identical with that adopted in England and Wales in 1927 and is therefore similar to the form recommended in principle for international use by the group reporting to the League of Nations in 1935 [4] and to that adopted by the Commission Mixte de Statistique Sanitaire of the International Statistical Institute at Cairo in 1928.

Before this change was made, the

The principal cause of death and related causes of importance were as follows:	Date of Onset
.....	.....
.....	.....
Other contributory causes of importance:	
.....	.....
.....	.....

FIGURE IV—UNITED STATES STANDARD FORM

Committee on the Form of the Medical Certificate of the Canadian Public Health Association undertook a careful survey of the phraseology of the questions relating to cause of death in use throughout the world. The English form (Figure II) and the Swiss form (Figure III) both represent attempts to secure a logical statement and a clear separation of contributory causes which are related to and those independent of the disease to which death is attributed for statistical purposes.

The phraseology of the United States standard medical certificate was also investigated (Figure IV) in a series of trials conducted by the committee.

In addition to these and numerous other types of phraseology for the questions relating to cause of death, the committee prepared several drafts of its own. The first of these was the Minnesota certificate with the addition of a line for "terminal cause." The second is shown in Figure VI, and represents an attempt to place the burden of classification directly upon the physician. In a third draft the words "independent of underlying cause" were added to the request for a statement of "Contributory causes of importance."

It is noteworthy that the modifications made by the committee in each case moved toward the objective served

The Primary Underlying Cause of Death was	Duration
.....	.....
.....	.....
Contributory causes of importance in order of onset	**Duration**
(1).....	.....
(2).....	.....
(3).....	.....

FIGURE V—MINNESOTA FORM

The medical certificate used in Minnesota differs from the United States standard chiefly in the request for a statement of "Primary Underlying Cause." and in asking duration rather than date of onset (Figure V).

by the English form of statement. Thus each revision attempted to do two things: (1) to establish more clearly the certifying physician's opinion, and (2) to separate effectively contributory causes which were related to the "cause

CAUSE OF DEATH

The Terminal Cause of Death was .....

The Primary Underlying Cause (one) to Which This Death Should Be Attributed in Medical Records was .....

Duration of ..... years ..... months..... days

Contributory Causes of importance

.....

.....

.....

FIGURE VI—C.P.H.A. COMMITTEE'S DRAFT NO. 2

CAUSE OF DEATH		Duration
(1) Terminal Morbid Condition		
(2) Morbid Condition or Injury Responsible for Train of Events Leading to Death		
(3) Important Contributory Morbid Conditions		
Related to (2) (Complications or sequelae)	Duration	
(a)		
(b)		
Not related to (2)	Duration	
(a)		
(b)		

FIGURE VII—C.P.H.A. COMMITTEE'S DRAFT NO. 4

of death," from other morbid conditions contributing to death but which were of independent origin.

COMMENT ON THE FINDINGS IN CANADIAN TRIALS

In trials of the English and United States forms conducted prior to other investigations it was found that physicians preferred the English method of statement and the logical order which it called for. Trials with the drafts prepared by the committee, referred to above, were only moderately satisfactory. The additional weight which was placed on the entry of a terminal cause was found to be unjustifiable since this was usually of no significant assistance in classification. Where a single entry was made, this was often entered as the terminal cause, the space for primary underlying cause being left blank. Having allowed three lines for the primary underlying cause, multiple causes were frequently stated there, obscuring the physician's opinion and defeating the objective.

Finally a field trial was undertaken in 8 large hospitals, using the English form with minor changes in wording[7] and the final (fourth) draft prepared by the committee, shown in Figure VII.

The findings of this latter undertaking emphasized the fact that whatever form was introduced, education would be a large factor in getting physicians to use such a form properly, and that *after the medical questions were changed there would undoubtedly be a period of transition during which physicians would continue to use it as*

CAUSE OF DEATH		
I		
Immediate cause Give disease, injury or complication which caused death, *not* the mode of dying, such as heart failure, asphyxia, asthenia, etc.	(a)	**Bronchopneumonia**
	due to	
Morbid conditions, if any, giving rise to immediate cause (stated in order proceeding backwards from immediate cause).	(b)	**Operation**
	due to	
	(c)	**Strangulated hernia**
II		
Other morbid conditions (if important) contributing to death but *not causally related to immediate cause.*		**Chronic nephritis**

FIGURE VIII—NEW CANADIAN CERTIFICATE OF CAUSE OF DEATH

if it were the old one. This has been borne out by experience during 1935 and 1936. In addition the studies demonstrated conclusively that, given the logical form of statement called for on the English medical certificate, the tabulator was provided with a better picture of the case and with more useful information to assist him in classification.[7] It was for this reason and in view of the recommendations made to the League of Nations as well as those of the Commission revising the *International List* in 1929, and also in the light of the experience in England and Wales, that Canada introduced in 1935 the new form of medical certificate of cause of death which it now has (Figure VIII).

The new English and Canadian certificates are designed to eliminate personal bias by reversing the order of statement, calling for the immediate cause first and then others in order, making provision separately for any unrelated causes considered by the physician to have been important contributing factors in the death.

The present procedure in certification in Canada may be stated briefly thus: If the physician feels that his case can be adequately certified by a single statement, this is entirely satisfactory. Such a statement is made under heading I, on the first line designated (a). If, however, such is not adequate, he has the opportunity of recording further information, either on lines (b) and (c) under heading I, or under II, according as the conditions to be recorded are respectively of related or independent origin in so far as the first statement on (a) is concerned. This information is sought to permit the selection of the cause for tabulation in the light of the certifier's viewpoint.

EXPERIENCE WITH CANADA'S NEW FORM

During the first 6 months after the introduction of the new form in Canada, as in England 8 years before, both the request for concise statements, and the fact that the order of statement was inverted from the old form, were disregarded by many physicians. Since that time there has been notable and persistent improvement. Table I gives the findings on the use of the new form at two intervals after its introduction in 1935.[8] The findings in an English sample[5] reported

TABLE I

The Use of the New Canadian Medical Certificate *

	Toronto [1]		*Toronto* [2]		*England & Wales* [3]	
Type of Entry	*Number*	*Per cent*	*Number*	*Per cent*	*Number*	*Per cent*
Single entry	110	12.2	274	28.0	5,637	57.0
Multiple entry in reasonable order and without ambiguity	548	61.1	504	51.4	4,001	40.5
Inverted entry †	240	26.7	172	17.5	107	1.1
Double entry ‡			30	3.1	147	1.5
Totals	898	100.0	980	100.0	9,892	100.0

* Samples exclude stillbirths.
1. Samples taken May–August, 1935, 6 months after introduction.
2. Sample taken March–April, 1937, 25 months after introduction.
3. Sample taken March, 1935, after 8 years' experience (after Stocks).
† Multiple causes in incorrect order or location, obscuring physician's viewpoint
‡ Two causes or more stated on one line and therefore ambiguous.

by Stocks are given for comparison.

A reduction in the number of multiple entries and a corresponding increase in single entries is of note. A reduction in the proportion of misused forms (inverted and double entries) is also gratifying. Indeed, the general consensus in Canada is that the new form represents a decided improvement over the old one and that the former confusion is being replaced by a clear statement of the opinion of the certifying physician. The younger physicians are using the form well, while those long in practice and accustomed to the old methods still frequently disregard the request for a logical sequence when multiple causes are stated.[9] This augurs well for achievements such as have been already sighted by the English office.

DATE OF ONSET OR DURATION ON THE MEDICAL CERTIFICATE

In respect to the need for date of onset or duration on the medical certificate the general opinion in Canada [9] is that such should not be included, particularly since it is used merely to assist in making decisions when the medical certificate is unsatisfactory. In very few instances does the record of a communicable disease contracted at an earlier date leave doubt as to classification, and such cases in view of their infrequency may readily be handled by supplementary correspondence with physicians. In just those cases in which the principal difficulty in classification arises (due to faulty certifying practice) duration is often not given, and, if given, is less likely to be reliable. For these and other reasons it was omitted from the revised form. Furthermore, the objective of the new certificate is to place the burden of indicating the cause of death for classification on the physician and not on the statistician. The difficulties which are now being experienced, arise chiefly from conflict in the application of rules of choice where joint causes are stated.

STATISTICAL PRACTICE—RULES OF CHOICE IN JOINT CAUSE SELECTION

More faith is often placed in statistics on causes of death than is justified. An analysis of the principles upon which they are based convinces one of the serious limitations inherent in them. The medical profession is somewhat skeptical of official records of causes of death and cannot be blamed entirely for this attitude. Physicians who are cognizant of statistical practice object to the way in which their medical statements are distorted in the official routine. They feel that it does not make much difference what form their statements take, since the death of their patient is frequently attributed to a cause with which they would not agree.

Rules of choice are designed to secure the uniform selection of a single cause where joint causes are stated or in other words to counteract the effect of ambiguous or unsatisfactory death certificates. The need for them arose largely because physicians did not understand the meaning of "cause of death" for statistical purposes, and because the phraseology of the medical questions in many countries was not based on establishing clearly the "cause of death" as defined. Failing to understand what is desired officially, physicians cannot hope, nor can they be expected, to give clear and unambiguous statements for the tabulator's guidance.

Under these circumstances and in the belief that "some physicians all of the time and all physicians some of the time" would attribute major importance to a complicating condition or end result rather than to the underlying disease, a set of arbitrary rules of choice has been laid down for use except when

there are other qualifying words or phrases such as "due to" or "following" on the medical certificate, which in themselves may lead the statistician to infer a contrary ruling. This practice is quite unscientific, from the medical point of view distorts the facts, and may at best be regarded as an unsatisfactory makeshift.

WHAT DO OFFICIAL RECORDS OF CAUSES OF DEATH TELL US NOW?

The net result of the use of arbitrary rules of practice deserves careful examination. On a certificate containing two questions, (a) "Cause of Death," and (b) "Contributory Causes," it would not matter whether appendicitis or peritonitis was recorded as cause or as a contributory, since the rules give preference to the primary diagnosis. What of a case of diabetes in which tuberculosis coexists? Rules of choice give preference to tuberculosis, but actually no rigid rule can be relied upon to interpret these cases correctly for the doctor. No two of these cases are of necessity alike. From the clinical viewpoint diabetes might be the "cause" in one case and tuberculosis in the other. Unless it is desired that records of cause of death become records of the incidence of certain diseases among the population at death, arbitrary rules like the above have no scientific support, and, furthermore, they place a premium on records of certain morbid conditions to the defacement of others.

The necessity for the adoption of such rules of selection therefore arises solely out of a system of certification "under which a number of concurrent or contributory causes are stated without complete or adequate guidance from the certifying medical practitioner as to the causal relation between them." The usefulness of any code of rules applied in making assignments would be greatly modified if it could be provided that "the certificate should itself contain such indications as would enable the selection to be determined by the practitioner's own considered judgment." [10]

This the English method of statement has been found to do, and there is no reason to infer that experience in Canada or elsewhere need be materially different if a similar form be used. The Conference at Paris in 1929 did not recommend the establishment of a general international code of rulings for dealing with joint causes. Indeed certain countries there represented felt "that the establishment of a rigid code for the classification of joint causes, however carefully elaborated, may have the effect of retarding the process of improving the quality of the entries in the certificates themselves, and to this extent would be undesirable." [10] The achievements in respect to certification in England strongly suggest the immediate need for serious thought to be given by other countries to the methods and objectives adopted there.

The rigid principles of joint cause selection tend to prevent official records of causes of death from being a sensitive index of medical achievement. Diabetes and cancer are two illustrations. Let us consider this point, keeping in mind that official records should reflect in so far as is possible, the considered opinion of an enlightened medical profession on the diseases which are fundamentally responsible for death.

DIABETES

In 1936 a confidential study of all deaths in which diabetes was mentioned on the death certificate in Ontario during a 12 month period, was undertaken in the School of Hygiene at the University of Toronto.[11] It became evident that no uniform arbitrary scheme for the selection of one cause

where multiple causes were stated could ever be satisfactory. In many instances the present statistical procedure militated against medical opinion and one could only conclude that our statistics on diabetes mortality have limited practical significance—except in so far as they tend to give a measure of the incidence of the disease among the population at death.

Physicians were asked to indicate, in the light of the meaning of the "cause of death," the disease to which the death of their patient should be attributed in medical records. From this information, Table II was prepared.

It was found that four-fifths of the death certificates upon which diabetes was mentioned would be classed to that disease according to official procedure, while the physician considered that only two-fifths should be so classified. In one-third of the 471 cases so classed officially, the disease had been present and recognized for 10 years or more. Many were mild cases developing late in life and many in which the disease was either controlled by diet alone or by a small amount of insulin. Two illustrations of the findings in individual cases may be noted.

(a) Case Wa 23—A clear case of a death attributable to diabetes. The certificate, Figure IX, is correctly filled in and indicates the causally related chain of events which led to death.

(b) Case T 123—The physician in this case was of the opinion that this death should not be classed to diabetes. He has clearly indicated this on the certificate but present practice classes this as a death from diabetes (Figure X).

	CAUSE OF DEATH
I	
Immediate cause Give disease, injury or complication which caused death, *not* the mode of dying, such as heart failure, asphyxia, asthenia, etc.	(a) ..... **Bronchopneumonia** .....
	due to
Morbid conditions, if any, giving rise to immediate cause (stated in order proceeding backwards from immediate cause).	(b) ..... **Gangrene** ..... due to (c) ..... **Diabetes mellitus** .....
II	
Other morbid conditions (if important) contributing to death but *not causally related to immediate cause.*	.....
	.....

FIGURE IX

	CAUSE OF DEATH
I	
Immediate cause Give disease, injury or complication which caused death, *not* the mode of dying, such as heart failure, asphyxia, asthenia, etc.	(a) ..... **Chronic degenerative myocarditis** ....
	due to
Morbid conditions, if any, giving rise to immediate cause (stated in order proceeding backwards from immediate cause).	(b) ..... due to (c) .....
II	
Other morbid conditions (if important) contributing to death but *not causally related to immediate cause.*	..... **Diabetes mellitus** ....

FIGURE X

TABLE II

Classification of 602 Deaths Among Diabetics

Ontario, 1935

Physicians' Opinion	*National Practice **		
	Diabetes	*Other Causes*	*Total*
To diabetes	218	22	240
To other causes	213	102	315
Not stated	40	7	47
Total	471	131	602

* Except diabetes preferred to lobar pneumonia.

The General Register Office in London, England, in 1935 reported upon a small sample of 121 medical certificates assigned to diabetes under statistical rules.[12] Of these 42 contained a statement of diabetes alone and 79 multiple causes. If the order of preference indicated on the certificate had been followed, 30 of the latter would have been assigned to other causes, giving 91 diabetic deaths or only 75 per cent of the original total. At the same time an inward transfer of 5 deaths would have occurred from other causes—a net loss of one-fifth. These data show that present practice fails to reflect accurately medical opinion.

CANCER

It is generally conceded that official statistics on cancer as a cause of death present errors in excess. The extensive preference given to cancer over other jointly stated causes has served to provide more nearly a statement of the incidence of cancer among the population at death than a measure of the mortality attributable clinically to this cause. Merely because an individual has a cancer, particularly if it is one of the accessible group of sites amenable to surgery, radium, X-ray, or a combination of these, is not sufficient reason why rigid preference should be given to it over causes of independent origin. Because cancer was present in the patient at death is not sufficient justification for attributing that patient's death to cancer.

Part of the solution to this particular difficulty lies in a medical statement which permits the physician to indicate clearly his own opinion and to say whether he thinks cancer was the important factor in death. *If it did not contribute to an important extent it should not be mentioned on the death certificate at all.*[13]

It has been urged that internationally uniform rules of preference where joint causes are stated would be a step toward comparability of records of causes of death on an international basis. This is an illogical contention since it implies that this in itself is the major source of the basic differences which now exist. There are many illustrations of incomparability traceable to this factor of course, but unless fashion of certification, unless the medical profession in various countries are informed upon the principles of medical certification, and unless the medical certificates are identical or essentially similar in plan the world over, international comparability of records will remain the myth it is today.

DISCUSSION

Many factors influence the completeness and accuracy of medical statements of cause of death. Of these, the form and phraseology of the questions relating to cause of death are ones whose influence upon the physician's report has been inadequately considered.

To define "cause of death" for the purpose of medical records as the "disease or injury which initiated the train of events leading to death" and to tabulate all records in the light of this definition is a major step toward securing sound practical information, if cognizance be taken of medical

opinion. Any attempt to make mortality records reflect disease incidence, and arbitrary rules in joint cause practice tend to do this, is open to objection and to failure because the viewpoint of the attending physician in many cases has to be disregarded and because mortality data can never serve as a reliable index of the incidence of disease among the population at death.

The history of attempts to improve medical certification is a history of attempts to find a means of making clear to the physician what is desired and to secure his full coöperation. Given a clear definition of the purpose of mortality data and an understanding by everyone of the significance of "cause of death" for statistical purposes through educational efforts which include the certifying physician, the problem resolves itself into one of phrasing the medical questions so that ambiguity is eliminated.

Completeness of medical statements is of secondary importance to accuracy. Accurate statements are ones which are adequate to give a clear expression of what "caused" death. A medical statement can be accurate and adequate for this purpose and yet, in the minds of some, be quite incomplete. Completeness should be considered as something ideally useful, virtually unattainable except in hospital experience, and, from the practical viewpoint, of little concern at the moment.

For many years we have pointed with pride to the declining proportion of deaths classed to "Cause of Death Not Specified or Ill-Defined." This pride is unjustifiable since this trend is in some measure due merely to the fact that physicians have been made to feel that in all deaths due to natural causes some specific statement *must* be given. They therefore often make statements which they have no evidence to substantiate. It would be far better to encourage physicians to state "cause unknown" or "unknown disease" when they find it impossible to make a scientific statement.[14, 15, 16] Statistics on causes of death could be much improved if all deaths for which the cause could not be reasonably well determined by the physician were so specified and so classified. Better to have 10 times the number of deaths classed to "Cause Unknown or Ill-Defined" than to have them included under headings where they very likely do not belong at all.

The question of the most desirable and satisfactory phraseology for the questions relating to cause of death on the medical certificate, is one of supreme international as well as national importance. We cannot afford to ignore the broad implications involved. Less stress on statistical rules and their uniformity and more on securing the certifier's viewpoint, is what we need today.

SUMMARY

1. Three aspects of medical certification deserve consideration, namely, education of the medical profession in the principles and practice of death certification, the form of the questions relating to cause of death, and the statistical practices to which medical statements are subjected in tabulation.

2. The achievement of accurate medical statements which reflect the considered opinion of the medical profession is an urgent need and depends first upon the physician clearly understanding the significance of the questions relating to cause of death and the general principles of death certification, including a clear conception of what is meant by "cause of death" for statistical purposes.

3. A lasting service to preventive medicine can be performed by each physician who produces authoritative and logical certificates of cause of death, and time should be found in the curriculum of medical schools to impress the essential points upon each student.

4. Satisfactory phraseology of the medical questions must fulfil two requirements: (a) give the physician the opportunity to express clearly his opinion as to the cause of death in each case, and (b) effectively separate contributory causes which are related to the disease causing death from those which are

considered to be contributory factors but independent of the underlying cause of death.

5. English experience has conclusively demonstrated the workability of a form which fulfils all the requirements which are necessary to an intelligent statistical assignment. Beginning in 1941, selection of the cause of death for tabulation is to be based on the certifier's opinion as gathered from a literal reading of the certificate, in place of selection by rule.

6. The existence of so many different types of phraseology of the medical questions the world over is in itself a serious source of incomparability of records on an international basis, and significant progress in this direction will be attained with the achievement of a uniform program for the medical certificate in all countries using the *International List of Causes of Death*.

7. Canadian experience since 1935 with a new form of medical statement similar to that introduced in England and Wales in 1927, as well as to that suggested by a group reporting to the Health Committee of the League of Nations in 1925 and subsequently by the Commission Mixte de Statistique Sanitaire of the International Statistical Institute at Cairo in 1928, has been gratifying and augurs fair for achievement of the objective of being able to accept the certifier's viewpoint in place of selection by rule.

8. A request for duration should not be included on the medical certificate among other things because (a) in many instances it is not reported upon and even when it is there is no plausible guarantee of accuracy, (b) the importance attached to it through assignment based on relative durations is merely a makeshift, failing a reasonable statement of medical opinion on the certificate, and (c) the ultimate objective, if scientific records of the causes of death are to be compiled, must be to place the burden of indicating the cause of death for tabulation upon the physician and not on the statistician.

9. Existing statistics on causes of death have serious limitations, traceable to the application of arbitrary rules under which they can never succeed in reflecting medical opinion. This they should be expected to do, and indeed must do, if any real significance is ever to be attached to them in practice.

10. Diabetes and cancer are just two instances of inaccuracies resulting from the rules of joint cause selection. Present methods tend to make statistics of causes of death a measure of the incidence of such diseases among the population at death, understating certain others as a result.

11. Existing practices are shown to lead frequently to an assignment with which the physician would not agree. *Part of this difficulty may be attributed to lack of appreciation by physicians as to what is desired on the form.* Many seem to regard it as a place for an abstract of the clinical history and pathological findings, which it certainly is not. What is desired is a terse scientific statement of the disease or condition responsible for death. Only important states should be mentioned, and while it appears to be implicitly thought that this is uniformly observed by the profession, nothing is more certain than that it is not. *If a disease or condition is clinically not an important contributor to death it should not be mentioned on the certificate at all.*

12. Anything approaching complete international agreement as to a uniform code of rules for the selection of one cause for tabulation where multiple causes are stated can never achieve anything of fundamental value toward international comparability of mortality statistics. Unless the medical profession be properly educated and instructed in the use of the medical certificate and unless medical certificates are similar in plan the world over, international comparability of medical records will remain the myth it is today.

13. Less stress on statistical rules and their uniformity and more on securing the certifier's viewpoint should be a guiding principle in the future.

14. The question of the most desirable and satisfactory phraseology for the questions relating to cause of death on the medical certificate remains still the important problem of the moment, and one of supreme national as well as international import.

REFERENCES

1. Second Annual Report of the Committee on Certification of Causes of Death. *Canad. Pub. Health J.*, 26:403, 1935.

2. Stocks, Percy. *Lancet*, 229:386, 1935.

3. Recommendations of Commission Revising the International List in 1929. *Manual of the International List of Causes of Death*, published by the Dominion Bureau of Statistics, Ottawa, Canada, 1933, page xvi.

4. *Report of the Group Entrusted with the Study of Causes of Death*, League of Nations Health Committee, Fourth Session, C.H. 288, 1925.

5. Personal Communication, General Register Office, London, March 12, 1936, and Report by Dr. Stocks to the Registrar-General, dated November 8, 1935.

6. *Registrar-General's Statistical Review, England and Wales*, Text 1927.

7. Report of the Committee on the Form of the Certificate of Death. *Canad. Pub. Health J.*, 25:337, 1934.

8. Fourth Annual Report of the Committee on

Certification of Causes of Death. *Canad. Pub. Health J.*, 28:507, 1937.

9. Third Annual Report of the Committee on Causes of Death. *Canad. Pub. Health J.*, 27:404, 1936.

10. *Manual of the International List of Causes of Death.* H. M. Stationery Office, London, England, 1931, pages v and vi.

11. Defries, R. D., and Sellers, A. H. Unpublished data.

12. Personal communication with Dr. Percy Stocks, General Register Office, London, England, October 25, 1935.

13. Hill, A. Bradford. Correspondence in *Lancet*, 228:770, 1935.

14. Bundesen, H. N., *et al.* *J.A.M.A.*, 109:337, 1937.

15. *Handbook on Death Registration and Certification.* Published by the Dominion Bureau of Statistics, Ottawa, Canada, 1936, page 17.

16. Defries, R. D., and Sellers, A. H. *Canad. Pub. Health J.*, 27:160, 1935.

Deadliest Drivers Are Boys

DEATH behind the driver's wheel, in the terrible annual auto accident toll, is not a grim, old, bearded man with a scythe. He wears the beardless face of a boy. Flaming youth at the wheel is the deadliest foe of today's highway-using public.

Remorseless statistics, presented before the American Association for the Advancement of Science by a critically analytic scholar, prove the indictment beyond possibility of denial. Dr. Harry M. Johnson, who led the study under the auspices of the Highway Research Board, sums up the case briefly and dramatically:

"If we pick the same number of drivers in each age group, and count the fatal accidents that each group has, we find that those who are 45 to 50 years old kill the fewest persons in a year. While they are killing 66, the 16 year olds are killing 201, the 17 year olds 186, the 18 year olds 148, and those between 19 and 21 are killing about 215 persons for each 100,000 drivers on the road. . . .

SECOND DANGEROUS AGE

"The drivers older than 45 tend to become more deadly each year, reaching the average rate for the whole population about age 64 to 65, whereupon the rate suddenly falls. This decline may be due to the older drivers driving less and less, instead of better and better."—Dr. Frank Thone, *Science News Letter*, March 5, 1938, p. 150.

Organisms Involved in the Pollution of Water from Long Stored Feces*

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OBVIOUSLY one of the most important factors controlling the flora of stored feces is the bacterial picture of the feces before storage. The complexity of this original flora is almost beyond belief. Of the many microbes present only those of interest to pathology or others which may serve as indicators for fecal pollution are at all well known. Omitting frank pathogens from consideration, fresh fecal specimens may contain coliform bacteria, enterococci, classical anaerobes, non-sporing anaerobes, yeasts, spirochetes, staphylococci, lactobacilli, thermophilic bacteria, aerobic sporebearers, Pseudomonas, and reputedly even the "Bacillus P" of Clemesha,[1] molds, algae, Proteus, Alcaligenes, and Friedländer's bacillus. The "inapparent" viral content of the bowel can only be guessed at and in its environment bacteriophage activity may be considerable.

Again, it is now well recognized that the flora of the individual differs from time to time even when that individual is in normal health and on a relatively stable diet. Occasionally no coliform bacteria can be detected, and at other times though coliform organisms may be present *Bacterium coli* in all its varieties may be absent, the only group organisms present being the citrate-utilizing *Bacterium aerogenes* or coliform intermediates (Parr [2, 3, 4]; Carpenter and Fulton [5]). Bailey [6] has reported a colon carrier of typhoid bacilli yielding practically a pure culture of *Eberthella typhi* and Sandholzer [7] a case in which the only organisms recovered were Pseudomonas. Parr [8] has recorded one subject in whom only chromogenic colon bacilli were present and another in whom the sole aerobic fecal flora was paracoli. Some years ago Van der Reis [9] had a patient with a secondary anemia from whom a practically pure culture of *Clostridium tetani* was recovered.

Thus we know that fresh fecal specimens may be encountered which can pollute water without detection by the bacteriological methods now in use. Happily such specimens are not common and probably figure very little in sanitary problems involving communities. Nevertheless, even in modern society, many factors still operate for the individual pollution of food and drink and, indeed, in recent years there has been an increase in such opportunities through the rise of a large transient population, improvident and otherwise.

As long as bacteriologists can be

* Read before the Laboratory Section of the American Public Health Association at its Sixty-sixth Annual Meeting in New York, N. Y., October 6, 1937.

satisfied that all outbreaks of gastro-intestinal distress, transmitted by water, are caused by well known and clearly recognized pathogenic forms of enteric bacteria one might suppose but little need exists for detailed study of the flora of feces, fresh or stored, Such is not the case. No aspect of bacteriology offers a better field for studies in bacteriological ecology, in the origin and interrelation of bacterial species, and in microbic genetics than does intestinal bacteriology. Sanitarians pose questions of great practical importance regarding indices of pollution, recent pollution, human versus animal pollution, and the like which are still unanswered. There is no bacteriologist who has not been impressed by the fact that within a few hours following the drinking of sewage polluted water illness appears which may or may not later be followed by cases of amebic dysentery or typhoid fever. What bacterial component of the sewage causes the earlier aspects of this well known phenomenon, and how?

Again, from time to time, bacteria are reported as causes of disease whose exact nature or place in the intestinal flora is not clearly understood; for example, "*B. coli mutabile*," slow-lactose fermenters, "*B. alkalescens*," Morgan's bacillus, and paracoli. Finally, sanitary science is increasingly meeting with cases of individual or mass disease, apparently water-borne, for which no etiological agent can be named, and occasionally when the water in question, by present standards, appears to be potable.

In the endeavor to obtain a better understanding of these problems we have been led to consider the part bacteria from stored feces may play. This interest has been accentuated by studies of the 1930 and 1931 records of illness in the Ohio Valley during widespread drouth and by the implications arising from our studies on the normal flora of fresh and stored feces in the human.

That long stored feces will contain bacteria different from those encountered in a study of fresh feces should be evident from an appreciation of the principles of ecology. For fecal specimens, protected during storage from admixture with non-fecal bacteria, the new bacterial picture can be explained on two different grounds.

It is possible that some of the bacteriological changes observed may be due to bacterial variation—the loss of characteristics or the acquisition of new ones apparently giving rise to new organisms. This may be the origin of slow-lactose fermenters, "*B. coli mutabile*," or even paracoli from *Bacterium coli*.

On the other hand most of the evidence suggests that the bacteriological changes observed as fecal specimens are stored are to be explained as successions of forms based on facility of adaptation to the environment presented under conditions of storage. The first real study of the effect of storage on feces was made by Jordan,[10] who utilized fecal masses stored in tight containers. Some of the masses were uncovered and others were covered with soil or with sand. Four temperatures were used—body, room, ice box, and —11° C. Jordan found that when feces leave the body there is a short period of multiplication of the bacteria they contain, later followed by a numerical depression. This takes place at all temperatures but is most rapid at the temperature of the body. This was explained on the theory that in the bowel some sort of inhibitive factor operates which is absent from the excreted feces. Jordan did not analyze the bacteria involved in any great detail but he did determine that the multiplication he observed was not that of *Bacterium coli* but of other bacteria present in the feces. *Bacterium coli* is

eventually eliminated from stored feces, most rapidly at body temperature, most slowly at —11° C. At this last temperature Jordan found that coli persisted for 2 or 3 months.

In this paper we shall discuss but two of the bacterial groups important in feces. For more than 4 years we have been studying the normal flora of fresh and of stored feces in the human subject. During this period 235 specimens from 100 persons have been studied in some detail. Thirty-eight of these specimens have been studied stored at 37° C., and more than half have been stored in the cold room with storage studies completed on 68. The feces were stored as heavy saline suspensions. Endo's agar was used for direct plating, the 38 body temperature storage specimens being plated 183 times, and the 68 from the ice box 368 times. With a very few exceptions the 37° C. and ice box storage specimens are duplicates prepared from the original fresh specimen on which study of the flora of fresh feces was made. Enrichment by lactose broth followed by plating was only used where adequate direct plating failed to yield growth.

The 2,595 colonies isolated in these 551 platings were carefully purified and subjected to detailed pure culture study. Results were recorded in terms of coli, coliform intermediates, and aerogenes through utilization of the four tests comprising the "Imvic" reaction,[2] namely indol production, methyl-red reaction, Voges-Proskauer reaction, and citrate utilization. A number of other determinations were made for each culture and form a part of the complete record.

We early found that about 9 per cent of all fresh fecal specimens studied to determine their coliform content contained only *Bacterium coli* in one or more of its fermentative varieties. It is true that the original routine analysis of the fresh specimens revealed about 3 times this number of "coli only" specimens. However, by unusually detailed study of the fresh specimen or by following it carefully through storage, two-thirds of these were found to have originally contained a few citrate-utilizing coliform bacteria which as storage progressed developed at the expense of the coli and dominated the coliform picture after a few weeks of storage.

For the coliform bacteria there are then two pictures to be seen in stored feces. When the original fresh specimens (9 per cent) contain only *Bacterium coli,* no amount of storage will bring about the presence of any other type of coliform organism. Specimen No. 4 illustrates the point. In ice box storage this specimen yielded coliform bacteria for 359 days. During this period it was plated on Endo 22 times and 124 colonies were given pure culture study. Each culture was *Bacterium coli* and even the last isolations appeared on Endo and in culture as "typical" colon bacilli. Similar results were obtained with specimens Nos. 57A, 88, 92, 95, and 118. These 6 specimens were obtained from 5 different subjects. It is thus possible for a stored fecal specimen to yield "typical" *Bacterium coli* for a very considerable time. It is important to realize that in such specimens *Bacterium coli* persists despite considerable competition offered by other bacteria present in the specimen which are not coliform, such as enterococci, spirochetes, classical anaerobes, and Bacteroides. *Bacterium coli* cannot, therefore, be unqualifiedly considered as the indicator of recent fecal pollution.

The more common picture as far as coliform bacteria is concerned is observed when the original fecal specimen contains citrate-utilizing coliform bacteria as well as *Bacterium coli.* The citrate-utilizers (aerogenes, cloacae, coliform intermediates) multiply in

storage very much more readily than do the coli, and eventually completely replace them. Along with this change we observe an increase in the proportion of strains which ferment lactose slowly or with acid production only, and an increase in gelatin liquefiers.

Such specimens will not number 91 per cent for we have found that in any large series of fresh fecal specimens there will be some from which no coliform organisms can be isolated. Thus among 194 such specimens from adults 4 were encountered deriving from 3 persons which failed, even with enrichment, to yield coliform organisms, and there were 7 specimens likewise coliform negative among 41 specimens obtained from normal babies less than 2 weeks old.

Recovery of coliform organisms can be made after long intervals of storage of fecal specimens in the vast majority of instances. Parr [11] has elsewhere discussed the viability of coliform organisms in culture and in other environments. One further illustration will clarify the point and extend his earlier remarks. Specimen No. 3, as a fresh specimen, on direct plating yielded only *Bacterium coli* (15 colonies studied). Under conditions of storage in the ice box the coli diminished in number and citrate-utilizers appeared ultimately pushing the coli completely out of the picture. When last plated out this specimen still yielded citrate-utilizing coliform bacteria after an interval of storage amounting to 3 years, 10 months and 2 days. The period of survival is shortest at 37° C. and longest when the suspension is stored in the cold. Among the coliform types noted in such long stored fecal specimens are some similar to, if not identical with, slow-lactose fermenters, "*B. coli mutabile*," "*B. coli anaerogenes*" and even the "*B. alkalescens*," and paracoli mentioned in some connections as pathogenic.

The second bacterial group to which a short preliminary discussion will be devoted is that which goes for the time under the name "Bacillus P." In India, Clemesha [1] was convinced that it was next to impossible to obtain water for drinking purposes which would meet British standards. He proceeded to work out a method of bacteriological control applicable to the climate and conditions of India. He proceeded on the hypothesis that some strains of coliform bacteria might be more indicative of fresh fecal pollution than others. To find which these were he prepared suspensions of feces which he exposed in shallow dishes to the action of sunlight. Isolations were made at short time intervals. Clemesha found that certain forms could be recovered from fresh feces and for a few hours from the exposed suspensions. These were, however, shortly replaced in the suspensions by other forms, and these in turn by yet others, until at last all lactose fermenting aerobes had disappeared. There then remained Gram-negative, non-sporing aerobes which he called "Bacillus P." Beyond noting their resistance to the action of sunlight under the conditions of his experiment, Clemesha did nothing with these forms save to suggest that they were probably a group of bacteria and not a single species.

In our study of stored fecal specimens we have encountered these organisms. After a few weeks of storage they begin to appear and in most long stored fecal specimens "Bacillus P" occur in large numbers. When plated on Endo they grow as small, colorless colonies. The organisms exhibit a variety of biochemical activity, are in the main motile, and do not produce acid and gas from lactose even after repeated and prolonged incubation. All of the group in colony appearance, and some in culture, resemble paratyphoid, typhoid, and dysentery bacilli

and may be mistaken for them. Furthermore, certain of the strains give serological cross-reactions with these known enteric pathogens. Possibly the "Bacillus P" may be involved in gastroenteritis, apparently water-borne, since organisms similar to those we have under study have been reported from such outbreaks.[12]

Parr and Caldwell[13] encountered similar organisms in great numbers in water deriving from wells yielding old fecal pollution as shown by chemical tests. Parr[11] again mentions them in a study on the viability of coliform bacteria and elsewhere[3] he states they may occasionally be found in small numbers in fresh feces.

Data are available for 35 strains of the "Bacillus P" which we have isolated from long stored feces stored in the cold and in a few instances from fresh feces. The strains were purified by repeated plating and were then subjected to detailed pure culture study. From 6 strains, examples of different cultural types, antisera have been prepared. Of the 35 strains 11 do not ferment any sugar. Eighteen strains produce acid but no gas in dextrose broth, and of these, 7 also ferment lactose to the same degree, but are not in colony appearance or in other reactions suggestive of "*B. coli anaerogenes*." Six strains ferment dextrose producing both acid and gas. Two strains produce hydrogen sulphide and 6 liquefy gelatin. Of these last one is a typical Proteus but the other 5 are not. The "Imvic" reaction (vide sufra), which is applied to coliform bacteria divides the 35 strains into 5 groups (− − − +, − − − −, + + − −, − + − +, and − − + +), but these divisions do not correlate with fermentation and other cultural differences.

Five of the antisera prepared with these organisms have been tested against 10 appropriate known strains—*E. typhi, S. sonnei, S. paradysenteriae, S. paratyphi, S. Schottmuelleri, S. enteritidis, S. cholerae* suis, *S. aertrycke, Proteus* X_2, *and A. fecalis*. No relationship was shown for Sonne's dysentery bacillus but cross-reactions occurred for *E. typhi* and *S. paradysenteriae*. Several of the strains suggest *Alcaligenes fecalis* culturally but the serum with one of them gave only a feeble agglutination reaction with a known *Alcaligenes fecalis*. Strongest cross-reactions were obtained with the human types of Salmonella against our serum No. 2, prepared with one of the "Bacillus P" organisms culturally resembling paratyphoids. Against a known *S. paratyphi* this serum effected complete agglutination in a dilution of 1/320, the titer of the serum with its engendering organism being 1/5120.

Such reactions mean no more than some degree of common antigenicity, but are sufficiently suggestive to warrant interest in the "Bacillus P" organisms. The group may have some sanitary significance, particularly under conditions permitting fecal storage in nature. It is possible that "Bacillus P" may be the group involved in the multiplication of bacteria in stored feces indicated by Jordan. Certainly their taxonomic position should be investigated and their relationship to the colon-typhoid groups clarified.

CONCLUSIONS

Some of the principles and theories underlying the development of a fecal flora in stored feces are discussed. Data derived from a study of 2,595 coliform colonies isolated from platings of stored feces permit a statement of the part played by the genus Bacterium. The "Bacillus P" of Clemesha is discussed and its rôle in stored feces indicated.

REFERENCES

1. Clemesha, W. W. *The Bacteriology of Surface Waters in the Tropics*. Calcutta, 1912.

(*References continued*)

2. Parr, L. W. Sanitary Significance of the Succession of Coli-Aerogenes Organisms in Fresh and in Stored Feces. *A.J.P.H.*, 26, 39 (Jan.), 1936.

3. Parr, L. W. Succession of Colon-Typhoid Organisms in Normal Human Feces. *J. Bact.*, 33, 75 (Jan.), 1937.

4. Parr, L. W. Occurrence and Succession of Coliform Organisms in Human Feces. *Am. J. Hyg.* In press.

5. Carpenter, P. L., and Fulton, M. Escherichia-Aerobacter Intermediates from Human Feces. *A.J.P.H.*, 27, 822 (Aug.), 1937.

6. Bailey, J. H. Personal Communication, 1936.

7. Sandholzer, L. A. Personal Communication, 1936.

8. Parr, L. W. Unrecorded Form of Bacterium aurescens, sole Colon-Group Representative in a Fecal Specimen. *Proc. Soc. Exper. Biol. & Med.*, 35, 563 (Jan.), 1937.

9. Van der Reis. Cited by Bauer, J. H., and Meyer, K. F. Human Intestinal Carriers of Tetanus Spores in California. *J. Infect. Dis.*, 38, 295, 1926.

10. Jordan, E. O. The Changes in the Bacterial Content of Stored Normal and Typhoid Feces. *J. Infect. Dis.*, 38, 306, 1926.

11. Parr, L. W. Viability of Coli-Aerogenes Organisms in Culture and in Various Environments. *J. Infect, Dis.*, 60, 291 (May-June), 1937.

12. Cooper, M. L. Unpublished data.

13. Parr, L. W., and Caldwell, E. L. Unpublished data.

The Business of Thinking

. . . All these things not only limit research activities in the laboratory, but effectively abbreviate and depreciate the important business of thinking. We are all familiar with the scientist who is endlessly active, but who seems to gallop all day on a ten-cent piece like a diminutive broncho plunging about endlessly and getting nowhere. Too evidently, such scientists are not indulging in the business of thinking and especially of asking questions as to the meaning of things and the planning of sound procedures to answer these questions. It should be axiomatic that the scientist must have time to think. His translatory activity in the laboratory, unsupplemented by adequate thought activity, is equivalent to driving madly through the night across the prairie without headlights on his car and is likely to terminate in such accidents or such arrivals at or near his point of departure as find their way into scientific papers to the distress of all critical minds. Such papers seem equivalent to the "Local Items" in the country newspapers. Thinking is the searchlight which enables us to see where we are going, and to perceive such side roads as should be noted for subsequent exploration, and too obviously most of us are following established modes of research most of the time without much of what could be properly termed real thought. . . .
—Dr. Maurice C. Hall, *Sci. Month.*, Feb., 1938.

Preventive Aspects of Crippling Diseases*

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IT is particularly opportune at this time to consider the preventive aspects of crippling diseases because of the great public attention which is being focused on the crippled child. This increased interest is largely the result of the extension and improvement of services for crippled children made possible by the passage of the Social Security Act. In providing care for the crippled child, one must not lose sight of the cardinal principle of public health that prevention is the only real cure for preventable diseases as well as being the most economical and the most effective. This principle applies to the actual prevention of deformities and disabilities in the normal child as well as to the preservation of function and prevention of additional deformities in the child already crippled. It is the purpose of this paper to present some of the more recently developed methods of attack on the preventive aspects of disabling diseases in crippled children.

In order to approach a problem of this magnitude logically, it is necessary to determine the extent of crippling conditions and the variable factors involved in the order of their importance and amenability of correction. The data to be presented have been accumulated over a period of years in Minnesota, whose population is approximately 2,500,000, of whom 50 per cent live in rural areas, embracing a territory of over 84,000 square miles. These factors are of importance when one considers methods of approach in a program of preventive medicine for crippled children where children must be contacted in their own rural homes.

In this state there are approximately 1,000,000 children under 21 years of age. On July 1, 1937, there were 8,300 crippled children under 21 years of age, an incidence of 8.3 per 1,000, on the central registry of the official agency. This registry does not include children with eye or ear defects alone, but includes a small proportion of non-orthopedic crippling conditions.

From an analysis of the cases under 21 years of age on the central registry, it has been determined that the causes of the disabling conditions are distributed in arbitrarily classified groups as follows: accidents, 11 per cent; anterior poliomyelitis, 20 per cent; arthritis, 2 per cent; cerebral palsies, 14 per cent; congenital deformities, 25 per cent; muscular dystrophy, 1 per cent; osteomyelitis, 4 per cent; rickets, 5 per cent; scoliosis of unspecified etiology, 1 per cent; tuberculosis of bone and joint, 3 per cent; and a miscellaneous group, 14 per cent.

On the basis of White House Conference reports of surveys, there are

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not less than 350 blind children and 1,000 children with serious partial visual handicaps under 21 years of age in Minnesota. The same general methods of approach to the preventive aspects of other crippling diseases are also applicable to children with defective vision. In addition, there are special methods for diagnosing defective vision which must be employed. Special classes, as well as medical treatment facilities, must be provided also. The principles involved in the preventive aspects of all handicapping conditions, however, are practically the same with minor variations.

In a group of 1,274 children crippled from anterior poliomyelitis, the age of occurrence of the disease in Minnesota is as follows: under 1 year, 7 per cent; 1 to 4 years, 49 per cent; 5 to 9 years, 30 per cent; 10 to 14 years, 11 per cent; 15 to 19 years, 3 per cent. In this group of cases, the percentage distribution by age group does not differ significantly by sex. When the distribution of occurrence of disability is correlated with the age of first hospital treatment, it is found that there is quite a lapse in the age at which treatment is given in relation to the age at which disability first occurred. In 227 male children crippled by anterior poliomyelitis who were admitted to the state hospital, 71.8 per cent did not enter the hospital until 3 or more years after the occurrence of the disease; 50.6 per cent, until 4 or more years; and 38.3 per cent, until 5 or more years after the initial attack.

Bone and joint tuberculosis presents a very interesting preventive problem in this state. It is noted that less than 3 per cent of crippling conditions are due to bone and joint tuberculosis. This particular field offers untold opportunities for practising preventive medicine. The age of occurrence of 219 cases of bone and joint tuberculosis in crippled children in Minnesota is as follows: under 1 year, 3 per cent; 1 to 4 years, 39 per cent; 5 to 9 years, 20 per cent; 10 to 14 years, 6 per cent; 15 to 19 years, 1 per cent; undetermined age under 21 years, 31 per cent.

When the first state hospital for crippled children was started in Minnesota in 1897, it was estimated that 70 per cent of the children who came to the hospital were disabled because of bone and joint tuberculosis, according to the present Chief of Staff of the State Hospital for Crippled Children. It is noteworthy at this time, 40 years later, to be able to say that less than 3 per cent of the crippling conditions found among children in the state are due to bone and joint tuberculosis, and that less than 1 per cent of the admissions to the state hospital are necessitated by bone and joint tuberculosis.

Better methods of tuberculosis control, such as improvement in the hygienic conditions, the standards of living, and the facilities for sanatorium care, have been of value in obtaining this marked decrease. One factor is probably of more importance than any other single factor—the eradication of tuberculosis among cattle. Every county in the state is accredited for tuberculosis in cattle, which means that there is less than ½ per cent tuberculous infection in the cattle in the entire state. The type of organism usually found in the lesions of bone and joint tuberculosis in children is the bovine strain, which indicates that the original infection probably came from milk from tuberculous cows. As to this particular phase of the preventive problem of crippling diseases, the livestock sanitary group must be relied upon to assist in reducing the amount of bone and joint tuberculosis in children.

Additional factors have an important bearing on the preventive aspects of crippling conditions: (1) the age at which the disability occurs, which must

be considered in relation to the time at which treatment is first started; (2) accessibility and extent of hospital facilities and out-patient facilities for the care and medical treatment of crippled children; (3) provision for and method of follow-up of children who have been brought under the supervision of the state agency.

With due consideration of the fact that a sound educational program for the actual prevention of crippling diseases in normal children must be carried on, the official state agency has emphasized that part of the work concerned with the preservation of function and prevention of further deformities in the child already crippled, because the state agency has the facilities and field personnel necessary for the extension and improvement of this phase of the program.

The orthopedic surgeon cannot provide medical care unless patients are made available to him. It is in this part of the program that special public health tools and methods are especially effective, and must be considered an essential part of the therapeutic resources. The tools referred to are public health nursing service (including physiotherapy) and crippled children clinics in rural areas.

The field nursing service is the connecting link between the official state agency and the crippled child living in the rural community. The public health nurse discovers new cases and reopens old cases which have prematurely ceased treatment. She does follow-up work on discharged hospital patients in coöperation with the medical social worker. She carries on a preventive educational campaign in every part of her work. She prepares the local community for the proper reception of field clinics, and, in addition, makes the necessary investigations to determine which new and which old cases should come to the clinics. She acts as a consultant to local school and county nurses in problems related to crippled children.

Whenever possible, local resources are used in obtaining information about and care for crippled children. This coöperative activity with local nursing and welfare workers is economical and avoids duplication of effort. It is imperative that numerous public health workers from different administrative agencies avoid multiple interviews of a family group for the same purpose when one worker can get the necessary information for all concerned.

Some of our public health nurses are also qualified physiotherapists. These nurses supervise the actual physiotherapeutic procedures on crippled children in their homes as recommended by the orthopedic surgeons, and, in addition, give a certain amount of physiotherapeutic treatment. This follow-up physiotherapy field service is one of the best means of preventing further deformities, particularly contractures, in crippled children who have had initial surgical treatment. The physiotherapists act as instructors and consultants to local public health nurses and are well trained to carry on an educational program for the prevention of crippling diseases.

An analysis of the records relating to the field nursing service during the past year brings out some very pertinent statistics. Public health nurses working in an area of over 84,000 square miles admitted 2,393 cases to the nursing service during that time. Of this group, 1,088 were new cases reported to the registry. In spite of the fact that at the beginning of this service there were approximately 5,000 known crippled children under 21 years of age in the state, the nurses were able to locate 1,088 additional cases in one year. This was an outstanding contribution to the program for crippled children by the field nursing service.

There was a definite shift in the age distribution toward the younger age groups in the cases found by the nursing service in comparison with the age distribution of all the known cases on the register. In addition, there was the added factor of importance in this service that, once these cases were discovered, means could be found to place these crippled children under adequate medical supervision.

In reviewing the visits made by the two physiotherapy nurses working throughout the state, it is noted that 1,257 physiotherapy visits were made. When it is remembered that physiotherapy is a very important part of the program of prevention of deformities in children already crippled, one can appreciate the value of such service even though it be difficult with a limited personnel to render this service over a large territory.

In an area in which there are public health nurses available for general public health duty, it is felt that the crippled children's division should develop a specialized physiotherapy nursing service. These nurses should have sufficient training in physiotherapy to insure that their work will be acceptable to the orthopedic surgeons in charge of the cases so that actual physiotherapy supervision and treatment recommended by the orthopedic surgeons can be given in the homes. The amount of training required to accomplish this must be determined by the orthopedic surgeons, the physiotherapists, and the schools of nursing. It is felt, however, that public health nurses who are acceptable as physiotherapists can serve in many different and important capacities not otherwise possible.

Field clinics have proved to be one of the most effective weapons in the prevention of further disability in children already crippled. The clinic is also of value as an educational means of acquainting the community, the local physicians, and public officials with the need for a concerted program directed toward the prevention of crippling conditions in normal children. The appeal of a crippled child is universal, and when a clinic is held in a local community and people see crippled children coming to the clinic, the impression is quite lasting, and the soil is prepared for the planting and growth of a permanent educational program in the local community.

Because of the large rural territory it is possible to hold clinics in local communities only once each year. In order that every crippled child may have access to an orthopedic examination, an attempt is made to hold the clinic in the same town yearly so that it may function as a permanent out-patient department of the State Hospital for Crippled Children. These clinics are coöperative affairs, with local, county, and state groups participating.

One must take into consideration that a crippled children's clinic is quite different from a prenatal, a preschool, a tuberculosis, or a nutritional clinic, due to the highly specialized nature of orthopedics. It is possible for an orthopedic surgeon to examine a patient quickly, determine what muscles are paralyzed, what bones are in a pathological condition, and, in the majority of cases, make a definite diagnosis and recommendation for treatment. In a clinic for crippled children one is not confronted with the difficulties of determining what may be hidden in the chest of a child who is not well, or what may be found in the abdomen of a child who is complaining of vague symptoms. It is possible in these clinics to examine new cases and determine what should be done, and to follow up old cases almost as effectively as can be done in the out-patient department of a hospital. In Minnesota all of the records for crippled children

in the community in which the clinic is being held are brought to the clinic so that an accurate follow-up can be accomplished. One of the orthopedic surgeons in attendance at the field clinic is on the staff of the State Hospital for Crippled Children so that the same standard of medical care is maintained in the clinic as exists in the out-patient department of the hospital.

The functions of the clinic are multifold, and include all of the preventive aspects of good public health practice. By means of these clinics it is possible to reach previously unknown crippled children for an examination soon after the occurrence of their disability. Many families living 200 or 300 miles from the urban treatment centers are unable to provide transportation to bring their children to the hospital for examination. By sending the examiners out to the children in rural areas much time is saved, examinations are made at an earlier date, and definite provision can be made for hospital care if the patients are unable to provide private medical care. New cases are discovered and treatments are started soon after occurrence of disability, and as a result these patients are given medical and surgical treatment in the shortest possible period of hospitalization.

In addition to the clinic service of examination of new cases, there is the equally important work of follow-up. It is true, in most instances, that children will come to the hospitals for crippled children to receive medical and surgical care, which may require several months of hospitalization. Not infrequently, however, crippled children come to the state hospital for surgical and other corrective treatment, go home and do not return. The result is that the initial expert work is very often of small benefit due to the fact that additional treatment needed cannot be given.

A study made by the new medical social service worker at the State Hospital for Crippled Children on 1,070 patients registered at the hospital showed that 140 patients who needed to return had been seen last 10 to 15 years previously, and that 215 additional patients who should have returned 1 to 5 years after their initial treatment had not returned at the time of the study. This means that the combined efforts of the field nursing and clinic services in coöperation with the hospital social service would be needed to prevent permanent disability and possible further deformity in 33 per cent of the 1,070 crippled children who had come to the hospital for care. Funds for any social service or field service at the state hospital were not available during the period studied.

The clinic serves as a valuable means for education of the people in the community to the need for early care of crippled children and for the prevention of crippling in normal children. The public interest aroused by the clinic, and the effect of the examinations on the parents of the crippled children and visitors, are of definite advantage in creating consciousness of the crippled children problem. In addition to the education of the lay persons in the community, the clinics have been of value to the local physicians too. Local physicians have attended every clinic which has been held, and invariably one or two physicians have stayed all day in order to observe the examination of each crippled child and to discuss orthopedic care with the orthopedic surgeon.

During the past fiscal year 12 field clinics for crippled children have been held in rural Minnesota. These clinics were strategically placed so that every crippled child wishing to go to a clinic had access to it in his own or in a neighboring county. In these clinics, 1,059 crippled children were examined. Of these, 372, or 35 per cent, were new

cases to the central registry of the State Board of Control. The majority of the new cases were referred to the clinics by field nurses. During the year the average number of crippled children admitted and examined per clinic was 88.

The age distributions of the new cases admitted to the clinics are of interest. The percentage of age distributions for those under 1 year is 4.9; 1 to 4 years, 22.8; 5 to 9 years, 24.4; 10 to 14 years, 22.8; 15 to 19 years, 23.6; 20 years, 1.6. There is a definite increase in the age group under 1 year of age in the clinic group as compared with all cases on the registry, a marked increase in the age group 1 to 4 years, and a decrease in the older age group in the new clinic cases as compared with the total group. There are many variable factors unaccounted for in this comparison, but it is strikingly evident that the clinics are bringing in for examination and treatment a large number of young children.

In 25 per cent of the total clinic cases hospitalization was recommended. When children for whom hospitalization had been recommended and approved did not come to the hospital, the field nursing staff went into the homes to investigate the cause of the delay. In addition, arrangements were made for another 28 per cent of the total number of children examined at the clinic to be taken care of in one of the out-patient departments of the hospitals for crippled children. Some of these cases were to be reëxamined in future field clinics near the children's homes. When necessary, transportation from the home to the treatment center was provided by one of the local service clubs or by railroad companies. About 15 per cent of the total number of children were referred to the nursing service direct for supervision. This includes those cases which could give physiotherapy instruction in their homes by the field physiotherapy nurses. The remaining 32 per cent of the cases either needed no special treatment or other local arrangements were made for their care.

The results already obtained by means of the field nursing service and field clinics warrant the assumption that these two public health procedures have been of definite value and will be of increasing value in the preventive aspects of the program.

It cannot be emphasized too strongly that the family physician is an integral part of any sound public health program for crippled children. He is the person who usually sees the crippled child first, and to whom the crippled child must be returned after special medical care has been given. It is possible to find out about many new patients from the local physician and at the same time stimulate his interest in the preventive aspects of crippling conditions. He may also be encouraged to make use of state facilities for the proper orthopedic care of such of his patients as are unable to provide private medical attention.

The public health nurses have done fine preventive work in bringing to the attention of the medical profession information relative to services for crippled children. In a 12 month period, 6 public health nurses working throughout this large territory have interviewed over 900 general practitioners, have acquainted them with the services for crippled children, and have emphasized the need for prevention of crippling conditions in both normal and crippled children.

The rôle played by the orthopedic surgeon in the preservation of function and prevention of further deformities is of paramount importance and is the hub of the wheel around which all complementary and supplementary services revolve. The 3 principles outlined by Orthopedic Surgeon

Hart, which are of particular value in the prevention of deformities and disabilities, are: (1) surgery when indicated; (2) fixation in optimum position; (3) physical therapy; all of which are directed toward mechanical and physiological rest of the injured or diseased part.

The orthopedic surgeon cannot carry out his principles of medical care unless patients are made available to him, preferably soon after the occurrence of the disability, and continuously once treatment has been started. It is in this part of the preventive program that public health nursing and field clinic services are particularly effective.

The combined efforts of all these forces lead to the discovery of crippled children at an early age and soon after occurrence of crippling, and result in adequate and continuous medical treatment, with a greater opportunity for complete physical rehabilitation at a minimum cost to the state.

The need for state-wide development of sight conservation and other related projects through coöperation with agencies interested in the preventive aspects of crippling diseases, is obvious. Up to the present the crippled children program in Minnesota has been limited mainly to orthopedic crippling conditions, and the statistics quoted relate to the experience in that field. However, it is to be expected that in the future various types of crippling conditions and handicaps will be grouped to include all handicapped children under one heading. It is just as important to provide care for the child who is partially seeing or hard-of-hearing as it is for the child who is crippled because of the residual effects of anterior poliomyelitis. The preventive aspects of these other handicapping conditions are fully as important as the ones briefly mentioned in this paper, and require the application of the same public health methods described above, if permanently beneficial results for crippled and handicapped children are to be obtained.

SUMMARY

1. Actual prevention of deformities and disabilities in the normal child is a very important part of the problem of the crippled child. Emphasis by the official state agency has been placed upon the equally important part of the program concerned with the preservation of function and the prevention of additional deformities in the child already crippled.

2. The extent and distribution of crippling conditions and some of the variable factors involved in a preventive program in a state with a population of approximately 2,500,000 people, are presented.

3. The age of occurrence of various crippling diseases and conditions is presented and shows that effort must be concentrated in the early age group, during which a large proportion of the crippling occurs.

4. Three factors have an important bearing on the preventive aspects of crippling conditions:

a. The age at which the disabilities occur

b. Accessibility and extent of hospital facilities

c. Provision for follow-up examinations of children who have had initial medical care for the correction of their crippling conditions

5. Field nursing service and field clinics seem to offer an effective and successful means of reaching and maintaining supervision over the largest number of crippled children in a state with a large rural population.

6. It is emphasized that the family physician is an integral part of any sound preventive program for crippled children, and that the orthopedic surgeon is the person most competent to provide special medical care and treatment.

7. With a knowledge of the extent and distribution of crippling conditions, provision of hospital facilities for examination and treatment of crippled children, competent field nursing service and field clinics adequate enough to find children soon after the occurrence of disability, and an educational preventive program directed toward normal children, we are prepared to attack the problem of prevention of crippling diseases in its entirety and to establish a more adequate basis for the health and welfare of under-privileged and handicapped children.

The Public Health Nurse and Orthopedic Nursing Care*

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DOES the public health nurse have a contribution to make to the care of the crippled child and the orthopedic program? If 20 years of experience in one public health nursing organization can be used as a guide, one can say with firm conviction, "Yes."

The care of the crippled child in the Boston Community Health Association was initiated by an emergency situation—the infantile paralysis epidemic of 1916. With the large number of cases suddenly thrust upon an unprepared community and the prospect of years of intensive treatment and aftercare before them, the authorities turned to the agency in the city that for years had been caring for the sick in their homes. The visiting nurse knew how to enter a home, how to establish a friendly relationship with the family, how to give individual service to the patient, how to teach the family and help them to adjust to illness. What she did not have in this instance was the specific training in physical therapy needed for the follow-up treatment of poliomyelitis. This she could acquire, however, and a few nurses who had been on the staff for a number of years were given this special preparation. They returned to the staff and initiated the program of home treatment and supervision of the infantile paralysis cases. Later a plan was worked out whereby each year one or two nurses were released to take a short intensive course in physical therapy and to return to act as orthopedic nurses in their districts. Thus a small corps of specially prepared nurses was gradually built up to serve as a nucleus for the orthopedic program.

Gradually, too, the care of other orthopedic conditions was added to the service. While we usually think of the poliomyelitis work as constituting the largest part of the program, we are always surprised on taking a census to find how many other orthopedic cases are under care. On the first day of January, 1937, for instance, we had on our records 401 active cases which were receiving orthopedic nursing treatment. Of these only 210 were poliomyelitis cases; the others included fractures, arthritis, cerebral hemorrhage, obstetrical paralysis, muscular atrophy, osteomyelitis, club foot, pronated feet, torticollis, scoliosis, etc.

Just as we have gradually added these other conditions to our case load, so, over the years, the orthopedic nurses have gradually passed on to the rest of the staff an appreciation of orthopedic nursing care. At first this was largely an unconscious process, but

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of later years has been very much a conscious one, with a definitely planned program of staff education in orthopedic conditions under the leadership of our orthopedic nursing supervisor. At present we have 10 orthopedic nurses to a staff of approximately 140 nurses, who are distributed through the various districts of the association and their activities are as follows:

1. To care for all the infantile paralysis cases in their districts.
2. To give nursing care as needed and general health supervision in those families which they are carrying for polio after-care—this may mean prenatal care to the mother, correction of defects of other children, instruction in diet, etc.
3. To carry a small district of their own for general service, similar to the other staff nurses, depending on how heavy the infantile paralysis case load is.
4. To act as consultants to the other nurses on orthopedic problems.

The general staff nurse, on the other hand, is now carrying any orthopedic case that occurs in her district with the exception of infantile paralysis. The orthopedic nursing supervisor demonstrates the treatment to the general nurse and gives her close supervision. Occasionally the general nurse has even carried an infantile paralysis case under close supervision. Thus the objective has been to make it a truly generalized program.

The orthopedic nursing supervisor directs the educational program in orthopedic care, supervises both the orthopedic nurses and the general staff nurses, and acts as a liaison between our agency and the various orthopedic clinics which refer cases to us.

Let me give you one or two examples of the cases that we have carried. Johnny Harris was only 11 months old, one of twin boys, when he was stricken with infantile paralysis, which left him completely paralyzed in both arms and legs and in the respiratory muscles. His father died suddenly of pneumonia several months later, leaving Mrs. Harris with the two children to care for and support, one of them a helpless paralyzed baby. For 5 years our orthopedic nurse visited that home, giving intensive massage and exercise to Johnny, seeing that he was taken back to clinic periodically, watching one by one some of the more important muscles being restored, helping to keep up his mother's courage and morale as she struggled to keep the family going. Last year we were rewarded by seeing Johnny, aged 6, start at the crippled children's school, wearing braces, it is true, but with every expectation of taking his place with other children his age.

It would have been exceedingly difficult if not impossible for Mrs. Harris to take this boy to clinic regularly for treatment or to continue to give the treatment herself unaided over such a long period of time. Even in those families where the mother or father is giving intelligent and faithful treatment, we have found with 20 years of experience that the orthopedic nurse is very much needed, not so much sometimes because of the actual treatment that she gives, but because her regular visits bring encouragement and stimulation to the parents as well as to the patient, and give them the necessary impetus to carry on. I verily believe that the nurse who becomes over the years a staunch friend of the family, gives as much in hope and morale as she does in actual care and treatment.

The results that can be obtained through intensive and long-time treatment in poliomyelitis cases are so striking and well known that perhaps they do not need to be emphasized here. I do want to emphasize that the orthopedic nurse can be an important agent in giving this treatment. Not only in the follow-up care but also in the acute stage, if she can give nursing

care during that period, she can assist in preventing crippling conditions.

Less dramatic, perhaps, but just as telling is the contribution that the public health nurse can make in the care of other orthopedic conditions. There is the case of John Bailey, for instance, a husky truck driver of 35 years, who spent several months in the hospital with a badly infected hand and arm that had to be incised again and again. When he was finally discharged he was told he would never be able to use his right hand again, so badly had it become distorted and crippled. As a last resort he was referred to us for massage. The nurse worked for 3 months on the crippled arm, and again we were rewarded by seeing him return to his job with enough function to continue as a truck driver. This is an example of the kind of thing that a general staff nurse, without special training in physical therapy, can be taught to do.

Time and again when the doctor has about given up hope of restoring function in a crippled arm or leg, the nurse has kept on with the treatment and has been rewarded with partial recovery. Often, too, such recovery has meant obviating the need for an operation and other expensive treatment. Too often in the past in cases of fracture or hemiplegia in elderly or middle-aged people, have we accepted the condition as inevitable and they have become an accepted burden on the family and community. Now we are learning that often with skilled and prolonged treatment they can be partially restored as functioning individuals, and their pleasure and satisfaction therein cannot be over-estimated, let alone the saving to the family and community.

Orthopedic nursing care, important as that is, is only a part of the service that the public health nurse renders. By virtue of her preparation as a public health nurse, she can make a greater contribution. The orthopedic patient is not *per se* any different from any other with a specific diagnosis—he is still a member of a family and of a community, and is considered as such by the public health nurse, whose service is based on the fundamental principle of the family as a unit in health teaching. Again and again we find that in addition to specific orthopedic treatment there is urgent need for guidance in matters of diet and general hygiene, not to mention in the field of mental health. Many times it is discovered, too, that the orthopedic condition cannot be relieved until some other situation has been remedied. The public health nurse because of her intimate knowledge of the family and home is in a strategic position not only to ascertain the sum total of situations which enter into the family's way of living, all of which directly affect the recovery and well-being of the patient, but also to report these to the physician in charge of the case and to assist in their adjustment, whether it be through her own services or those of another worker or agency.

There was Mrs. Lewis, for instance, 64 years old and crippled with arthritis, who was referred to us for baking and massage. On our first visit we found that she was trying to get along on what was practically a starvation diet, that she badly needed dental care, and that although she wore glasses she could see very poorly as her eyes had not been reëxamined for 10 years. After many weeks and with the aid of various agencies and groups, new glasses were obtained, a set of teeth was provided, her income was supplemented to provide the necessities, and our nutrition worker aided her in working out a budget and adequate diet. While referred to us primarily for orthopedic care, it was only when these other conditions were adjusted that she began to show improvement.

Perhaps because we are fortunate enough in the Boston Community Health Association to have a nutrition service we have often found that it has helped to win the battle in many of these cases. Whether it was a 42 year old man partially paralyzed from poliomyelitis, who had to have a daily cathartic and enema until the nutritionist worked out a laxative diet for him; or the Haynes family with 4 children under 6, one of whom—3 year old Bobby—was so badly rachitic that he had to have his bowed legs broken and reset; the need for nutrition advice is of vital necessity if permanent improvement is to be expected. In fact, so imbued with the importance of adequate diet was 6 year old Johnny Harris, mentioned above, that when he was served one day with a hot dog at lunch at the crippled children's school, he refused to eat it, saying seriously that he didn't think hot dogs were very good for him! Needless to say, we do not always get such a response from our children!

If nutrition teaching is found to be an essential part of our service, equally so is the need for mental hygiene. The public health nurse, because of her association with the family over a long period of time, can give invaluable aid in helping both the patient and the family with the right approach to the patient's condition. Perhaps more effective than any direct teaching that she does in this field is the indirect value to the family of observing in visit after visit the nurse's own attitude toward the patient; her manner of talking to him; of giving understanding and encouragement without too much sympathy; of expecting him to make an effort in his own behalf and fulfil his part in making improvement, in securing an education and vocational training. I have been impressed in visiting orthopedic cases with our nurses by seeing the skill with which they approach the patient and his individual problems, and how unconsciously, perhaps, over their years of experience they have learned to demonstrate a sane approach to the crippled individual.

While we have considered up to this time the part that the public health nurse plays in the care of the orthopedic patient, equally important is her contribution to the program of case finding and prevention. Let me cite a few examples.

One of our nurses—not an orthopedic nurse—had been giving care to a 9 year old colored girl with acute pharyngitis. On her last visit, when the girl was up and around, the nurse noticed that she walked with a slight limp. The mother was persuaded to take the child to the clinic, where she was found to have a congenital dislocation of the hip. Arrangements for an operation were made immediately and the condition which had been neglected for 9 years was taken care of.

In another instance a nurse was giving postpartum care to a mother and noticed that one of the children walked with a limp. It was found to be an old poliomyelitis case that had gone unrecognized.

An alert public school teacher was responsible for discovering another case of old poliomyelitis. It happened that she had two crippled children in her class who were under our care, and through them had learned something of the treatment. She spoke to the nurse about another boy who limped slightly, and he, too, was found to be an old poliomyelitis case and was placed under care.

The maternity service offers an unusual opportunity for preventive work as our nurses have been taught by the orthopedic supervisor, as they examine and bathe the new baby, to be especially alert to any suspicion of congenital defect, which occasionally, in the rush

of both hospital and home delivery, goes unnoticed.

To make a corps of nurses "orthopedic conscious" is neither an easy nor a quick task. It is a slow process of education and continuous "exposure" to orthopedic work and the orthopedic worker. Yet when it is accomplished, the results are so worth while and often so startling that we have never regretted the time and effort that have been put into it. We have seen new staff nurses and even supervisors who are skeptical of what can be accomplished until they work with a patient themselves, with the guidance and help of the orthopedic supervisor, and see the results. Then they are sold to it forever after.

It seems to us essential that there should be one specially trained orthopedic nurse—or for a large staff, a small corps of orthopedic nurses—to serve as a nucleus for the program. It seems to us equally essential that a conscious effort and plan be made to have that nucleus radiate through the entire staff and service. This must be done if the public health nurse is to play her most important part as an instrumental factor in the case finding and preventive program.

I do not need to emphasize how important is the relationship and tie-up of the orthopedic nurse to the other agents in the orthopedic program. The care and education of the orthopedic case of necessity involve continuous and close team work between many workers and groups, physician and clinic, physical therapy technician and public health nurse, social worker and teacher, vocational school and employer—a life cycle of coöperative endeavor and a true challenge to any community service. The public health nurse's contribution to this scheme is insignificant indeed unless she sees herself as a part of this larger program and fits in her own service accordingly. She must know what are the potentialities and facilities for creating a useful citizen and is often the first person to turn the family's attention to a wider horizon of development and usefulness.

How shall we prepare our public health nurses for this work? By necessity we have done it in our own organization more or less, as you can see, by the fortuitous method. For those who were to serve as the nucleus of the service, the special orthopedic nurses, we have built on the foundation of their public health nursing preparation and experience and added to it intensive training in physical therapy. They have then worked on the staff under the close and continuous supervision of our orthopedic nursing supervisor. For the general staff nurse—and again I want to emphasize that her preparation for this service is fully as important as that of the special orthopedic nurse—we have again built on her public health nursing preparation, and by a planned staff educational program, the opportunity to carry orthopedic cases under supervision, and continuous exposure to orthopedic work, have gradually built up a staff of generalized nurses, not only able to carry general orthopedic cases under supervision but a staff that is "orthopedic conscious" and, we feel pretty sure, one that is making a definite contribution to the case finding and preventive program.

This is the orthopedic nursing program of one agency that already had a well established public health nursing program. How far this same program can be developed in rural areas and on a state-wide basis is another question. And yet the general principles, it seems to me, remain the same—a well prepared body of public health nurses, a group of orthopedic nurses to serve as a nucleus and act in a supervisory and consultant capacity, and a continuous staff education program. It

sounds simple, but, as many in this audience know, is far from simple in practical application. It is something that we shall have to experiment with. It has taken our organization many years to develop the program to the place where it is today, so you can see what lies ahead. There are many questions involved. Do we need more orthopedic nurses or physical therapy technicians, or both? Where does the work of one leave off and the other begin? Each has a definite contribution to make.

Again, what is the best way to prepare orthopedic nurses? I am not sure that we yet know—here, too, we shall need to experiment, and here, too, there are many questions involved. How much physical therapy does the orthopedic nurse need? Does she need to be a public health nurse-physical therapist, implying complete preparation in both fields, or is the emphasis to be on orthopedic nursing, in which her major contribution and skills are to be in her own field of public health nursing with enough preparation in physical therapy added to enable her to carry on and supervise in the home—which is her especial province—the intensive treatment that is needed. I think that if we can keep in mind the inherent contribution that each of these two groups of workers has to make—the physical therapy technician as the specialist par excellence in the hospital and in the clinic, the orthopedic nurse as the generalized health worker in the home—that it will help. And if—more important still—we can keep uppermost in our minds, the needs of the patient and the most efficient and most economical way of meeting those needs, it will be more helpful still. What does the infantile paralysis patient, the general orthopedic case, need in the way of special treatment, general care and supervision, education? What kind of a worker, or workers, can best and least expensively meet that need? How shall this worker be prepared to give this needed service? The answers to these questions may mean that adjustments will have to be made by all groups, adjustments both in service and in preparation, but these we should be glad to make for the ultimate good of the patient.

In summing up, while there are still many questions to be answered and there is need for experimentation and further development, certain facts can be stated:

1. The experience of a number of communities, for the most part in urban centers, has demonstrated that the public health nurse has a definite contribution to make to the orthopedic program.

2. The public health nurse with special preparation in physical therapy can be an instrumental factor in the care of poliomyelitis cases, both in the acute stage and in the long period of follow-up treatment. The fact that she is a public health nurse and a family health worker makes her contribution in this respect particularly significant.

3. The public health nurse without special preparation in physical therapy can be taught to take care of general orthopedic conditions with the guidance of a special orthopedic nursing supervisor.

4. Public health nurses can be made "orthopedic conscious" through a program of staff education and continuous exposure to orthopedic work and orthopedic workers.

5. The public health nurse, because of her strategic position as a family health worker, can make her biggest contribution in the case finding and preventive program.

Social Work and the Physically Handicapped Child in the Development of a New State Program*

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IN the development of a new state program for services to physically handicapped children, in a state which is largely rural, and in which there previously have been no services on a state-wide basis, the problem which faces the medical social worker is that of developing effective methods for carrying out the type of medical social services which in the past have been available mainly to children in urban centers.

The methods used in setting up and carrying out an effective program will, of necessity, vary in different states because of the individual state setups, but they will essentially be somewhat similar and should be useful for comparison. It is because of this that it may be of interest to describe the preparation which was necessary before a program of services could be set up in Maine; the methods which have been used; how well they are functioning; and, at the present time, what the limitations are in the way of carrying out a complete program.

There were three vital needs which had to be met before the program could be set up. It was essential: (1) that the medical social worker should know, correlate, and be able to utilize the resources throughout the state; (2) that there should be established a close working relation between the State Bureau of Social Welfare and the State Bureau of Health (the Extension of Child Welfare Services being in the Bureau of Social Welfare; and the Nursing Division and Services to Crippled Children coming under the Bureau of Health); (3) that the purposes of the Crippled Children's Program and the Extension of the Child Welfare Services, which are interrelated and dependent upon each other, should be carefully interpreted and understood by the community as a whole.

With these needs in mind the medical social worker, together with the Supervisor of Child Welfare Services contacted social agencies and nursing groups, both public and private, as well as the individual nurses and social workers in the field. In addition, the medical social worker spent a considerable amount of time contacting medical, social, educational, vocational, and lay organizations, service clubs, and key persons throughout the state in an effort to elicit their interest and coöperation in locating crippled children and in the program in general.

The time spent in this preliminary

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work led to a good deal of coöperation and actual participation of these groups in the program, and it acquainted the medical social worker both with the resources which were available in the state and those which were lacking and would need to be developed.

It was learned that there was a scarcity of social, educational, and recreational resources, and that it would be easier to plan for the crippled child's medical care than it would be for his educational, vocational, and social needs.

Private social agencies were found to be located mostly in urban centers and their services to be available only for clients in those centers. There were no convalescent homes, and no facilities for mental hygiene work. Although occupational therapy and physiotherapy was available in all the hospitals which would be used for treatment of crippled children, only one hospital employed a medical social worker. Teaching facilities were inadequate, in that they were available in only one hospital, where provision was made for only 10 or 15 minutes a day instruction to each child in elementary grade work. There was but one special class for crippled children in the state, and this, although held in a public school building, was supported privately. There were no provisions for teaching children in convalesce[illegible], boarding, or their own homes, excep[illegible] Portland where one teacher was a[illegible]able for this purpose. Tuition for vocational training could be obtained for crippled children through the Rehabilitation Division of the Department of Education, but there were no funds to pay for the cost of board and room during the training period.

The Pine Tree Society for Crippled Children, a branch of the International Society for Crippled Children, had been established in the state but had never actually functioned.

It was apparent that, in a state which is 65 per cent rural, one of the difficulties in getting children to clinics and hospitals would be arranging for transportation, and that private resources for this purpose would have to be developed before clinics could be held.

Prior to the extension of child welfare services the case work of the Bureau of Social Welfare was limited to the care of Mother's Aid Families and the supervision of Neglected and Delinquent Children committed to the bureau for care and protection. Because of the limitations of the type of social services offered by the Bureau of Social Welfare to the Bureau of Health, a close relationship had not existed between the bureaus, even though both were within the Department of Health and Welfare. With the development of new Child Welfare Services, which were to be of a preventive nature, case work of the service type would be available and there would be provision for the supervision of boarding homes for crippled children.

The services of public health nurses, either employed by the state or local and private agencies, could be used throughout the state, and it would be possible to arrange for physiotherapy for patients placed in boarding homes, and in some instances in their own homes.

Clinics could be held regularly in 3 hospitals located in the largest communities and in rural areas when traveling conditions permitted. The clinics would be available to patients regardless of their financial status, the only stipulation being that the permission of the family physician must be obtained. Hospitalization for patients could be obtained at 4 private hospitals.

The determination of the patient's ability to pay in part or in full, for surgery, hospitalization, appliances, etc., could be made by the medical social worker and only those who were found

to be financially unable to pay would receive treatment free of charge. A fund for appliances, X-rays, physiotherapy, and convalescent care, would be available for use through the Bureau of Health, and a Hospital Aid Fund through the Bureau of Social Welfare for patients who had not received aid from the town or State Division of Aid and Relief within 3 months. Arrangements would have to be made with towns and the Division of Aid and Relief for the cost of treatment for patients under their care.

In order to arrange for transportation before the first clinics were held, the medical social worker met 3 area chairmen of the Pine Tree Society. These chairmen had not yet set up committees and they had no definite program plans in mind. It was agreed that active committees would be set up immediately, and that their first function would be to arrange for the transportation of children, for whom transportation facilities were not available. In addition to this, arrangements for transportation were made possible through the efforts of local service groups, whose interest and participation had been aroused mainly by the local nurses and social workers.

It was necessary to establish several working relationships in order to make it possible for medical and medical social recommendations to be carried out rapidly, and to prevent the unnecessary transportation of patients.

Arrangements were made with the Nursing Division, the Bureau of Social Welfare, nursing organizations, and social agencies, for all patients to be seen prior to coming into the clinic, by either a nurse or social worker and a refer blank filled out and sent in, together with the family doctor's consent slip giving permission for patient to attend the clinic.

The refer blanks were to supply the following type of data: Economic Status; Religion; Medical, School and Social History; Transportation Facilities; Verification of patient's legal settlement; and determination as to whether or not the patient's family was receiving public assistance, or had received any within 3 months.

The School and Social History, in detail, was to supply the following data: *School History:* School attended (parochial or public), location of school, distance from home, transportation, age at entrance, age when leaving school, reason. Special school or tutoring, etc., High School, vocational. Time lost due to lack of transportation, time lost during hospitalization or care at home. Mental rating. School adjustment, with teacher and other pupils. Plans for rehabilitation. *Home: Physical Set-Up,* Description of neighborhood and house, number of rooms, number of bedrooms, sleeping arrangements, location of bathroom and toilet, heat and light. Suitability of home from a physical standpoint for care of patient. *Family Relationships:* Attitudes, parents to each other, parents to patient and other children, patient to parents and other children. Suitability of the home from a psychological standpoint for care of patient. *Coöperation of patient and patient's family:* Estimate of actual or potential coöperation of patient and of patient's parents regarding medical treatment. *Social Data and Comments:* Family history and background. Type of parents. Management of patient and other children. Estimate of present economic situation of family. Recreation and special aptitudes of patient, pastimes, interests, playmates, etc. Interested agencies and individuals and why interested. The key person in the social situation, whether a member of the family, a relative, a private individual, or a member of an agency.

Authorization was obtained from the Bureau of Social Welfare for the med-

ical social worker to pass on the eligibility of patients for hospital aid, and the hospitals were notified to this effect by the Bureau of Social Welfare. It was, in addition, requested of the field workers that if the patient's family had been receiving public assistance within 3 months they should obtain authorization from the local overseer of the poor, or selectmen, for the cost of therapy, appliances, or hospitalization, which might be ordered at the clinic, to be met by or through the town.

Six months after the clinics were started the Pine Tree Society was reorganized and a new president appointed. She was one of the area chairmen, who had become greatly interested in the Crippled Children's Program, and had been responsible for a local school board taking over the financial responsibility for the one special crippled children's class in the state. She was also chairman of the legislative committee for education of the Parent-Teacher's Association, and it was hoped that it would be possible, through her, to obtain legislation which would provide for the compulsory education of crippled children in their homes. The impossibility of obtaining legislation for adequate teaching facilities for children in all of the rural schools this year, however, made this impossible. A Seal Sale was conducted by the Pine Tree Society at Easter time and it is hoped that by next year there will be funds available through this society to help in carrying out plans for the teaching of crippled children in homes, and to pay for the cost of board and room for patients whose rehabilitation plans cannot otherwise be carried out. The Services for Crippled Children is directly connected with the Pine Tree Society in that the medical social worker and the Medical Director are Directors of the Society, and the latter is also a member of the Executive Committee.

For the present time the Pine Tree Society is supplying transportation in 5 areas and within the year it is hoped that the remaining areas will be developed.

I think it can safely be said that the medical treatment and follow-up of the crippled children, under the care of the crippled children's service in Maine, is being carried out adequately. Reports of clinics and hospital recommendations are being given to the nurses and social workers in the field, and they are doing splendid work in the way of seeing that these recommendations are carried out and that patients return to clinics. The clinics have consistently grown. New cases continue to increase at a steady rate and for the most part patients return when check-ups are requested. That the value of the service is realized by rural physicians is shown by the fact that more and more cases are being referred in directly by them.

The information regarding the economic status of patient's family, which has been sent in on the refer blanks, has made it possible for the medical social worker to make financial arrangements quickly for the patient's care. Arrangements for hospitalization have been made as desired by the consulting orthopedists. This is shown by the fact that, even though over 700 cases have been seen in one year, there is no real waiting list for hospitalization. Arrangements for hospitalization have been made at the time of the clinic visit and for the most part patients have been admitted to the hospital on the same day.

It has been possible for the medical social worker to make arrangements, at the time of the clinic visit, for patients to obtain X-rays, physiotherapy, and apparatus, etc.

The school, social, and environmental information which has been obtained through the refer blanks, has made it

possible for the medical social worker to interpret the social conditions of the individual patients to the orthopedic surgeon, and together with him plan for the patient's medical social treatment. This information has also served as a basis of selection for those patients and families who would need medical-social treatment.

Medical-social services have been carried out mainly by the public health nurses and by the social workers in the Bureau of Social Welfare. Where actual case work has been needed the work had been done mainly through the Bureau of Social Welfare, due to the fact that there are so few private agencies in the state. The amount of case work services which could be supplied by these workers during the past year has been limited because the plan for Child Welfare Services was in the process of development. At present the social workers in the Bureau of Social Welfare are serving as actual field staff for the medical social worker.

I think it is important to point out that, if the development of Child Welfare Services within the Bureau of Social Welfare had not been provided along with the development of Services to Crippled Children within the Bureau of Health, it would be impossible for the latter to provide case work treatment for the patients under care.

The main limitations to the carrying out of a complete program of medical social services at the present time are: (1) the inability to arrange adequately for the education of crippled children during hospitalization and convalescence, as well as for those children who cannot attend school because of their disabilities; (2) the lack of funds to meet the cost of board and room for the children who for this reason will not be able to have vocational training; (3) the impossibility of supplying sufficient intensive medical social treatment for patients who may need help in making satisfying social adjustments. Medical-social workers are needed in the hospitals and in the field to supply skilled services before this last need can be met.

Acquired Tuberculosis in the Primate in Laboratories and Zoölogical Collections*

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TUBERCULOSIS has been a recognized major problem wherever primates have been kept for as many years as the organism *Mycobacterium tuberculosis* has been recognized in domestic animals and man.[1, 2] The gross and histologic picture of primate tuberculous pathology in its various forms has been well described [1, 2, 3] and compared with lesions in man both in this country and abroad. This order of mammals has not had the opportunity to build up a genetic resistance, inasmuch as the monkey does not usually encounter the disease in his native habitat.[4] The majority feel that there is small likelihood of active tuberculosis existing in the primate in his native forest. Before a monkey could become an open case and disseminate virulent organisms, his natural enemies would have destroyed him. There is always the possibility of making contact with organisms in and adjacent to native villages while feeding on refuse. The high incidence of tuberculosis in man in and near the habitats of primates suggests a source of infection by contact after capture. Tuberculosis mortality statistics from the League of Nations report for 1932 shows 307 deaths per 100,000 in Singapore and 613 in Manila; 294 in Panama, and 554 in Guayaquil as compared to 69 in New York and 55 for the United States as a whole. The number of primates born in captivity, which might eventually build a more resistant strain, is extremely small. Because of this lack of selective mortality, susceptibles continue to be placed in human communities where they make direct contact with frequent large doses of virulent *My. tuberculosis*, an organism to which they and succeeding generations have or will have little or no resistance.[5]

According to dealer reports, the traffic in primates is increasing. Laboratories are using greater numbers for the investigation of virus diseases; for physiological, psychological, bacteriological, anatomical studies, and experimental surgery. New zoölogical gardens, the construction of which was made possible by the Works Progress Administration, are making their appearance, some operated by city governments and others by zoölogical societies. Parks and laboratories have both made a very definite advance in the improvement of primate hygiene. The dealer on the other hand has not made

* Read before the Laboratory Section of the American Public Health Association at the Sixty-sixth Annual Meeting in New York, N. Y., October 7, 1937.

any marked change in his method of importing or holding primates for sale. If the animal is to be kept as a permanent exhibit and is expected to live through or exceed a normal life span, special precautions should be taken to prevent contact with large or frequent doses of *My. tuberculosis*. Usually the preventive program is weak. Shipping crate sanitation is notoriously bad. The type of construction, overcrowding, and neglect in transit is inexcusable. Paddy rice is not a satisfactory diet for a 30 day journey, and certainly not acceptable when thrown into a crate contaminated with tuberculous stools or dead specimens. Indian, Philippine, and like crews are an excellent source of virulent tubercle bacilli. Expectorating into the monkey shipping crate is almost a routine with them and the incidence of tuberculosis in this group is high. Monkeys may or may not be transferred or redistributed in new crates after receipt by the dealer. Usually the original crate continues to the monkey's destination—the laboratory, zoölogical garden, or circus. The method of shipping is as old as the business itself.

A tuberculosis-free collection must be protected from contact with new importations which may disseminate virulent organisms shortly after their arrival. Some form of diagnostic test should be used for the detection of tuberculosis and must be routinely used to eliminate those primates which may develop the disease during their period of exhibit. To understand fully the problem and to accumulate definite statistics, we prepared a questionnaire with portions acceptable to the varied groups which take part in primate traffic. It was sent to those institutions which we felt had the broadest experience. The average findings in the returned questionnaires indicate that the Bengal monkey, *Macaca mulatta*, decidedly exceeds all others in number of importations, and is the most popular laboratory animal.

The poor response to our questionnaire, and incomplete reports, indicate that little is being done to curb the rising incidence of infection.

The incidence of primate tuberculosis including all forms is about 10 per cent annually. Of all primates that die 80 per cent are attributed to tuberculosis. One laboratory states that they can demonstrate tuberculous lesions, often latent, in every monkey destroyed over a period of years—325 specimens. The primate incidence of 10,000 per 100,000 mortality is exceedingly high as compared with the national rate of 55 per 100,000 in human beings in the United States. However, in the report by Whitney & McCaffrey,[6] using Purified Protein Derivative in group testing in the United States, they find 47.0 per cent reactors in the all-age group, and 60.1 per cent reactors in the over 20 years group. The American Indian had the highest incidence, 72.4 per cent, the Negro second highest, 43.3 per cent.

Possibly man's allergic response is an indication of his immunity. The primate has some tissue reaction following acute infection but not enough to excite a typical allergic response of sufficient degree to be able satisfactorily and routinely to produce a tuberculous reaction. The Mantoux, Von Pirquet, Calmette, and intrapalpebral tests all give unsatisfactory results. The high susceptibility and poor or completely lacking allergic reaction in the primate suggests a relationship between immunity and allergy. Occasionally a typical reaction is seen which probably is a demonstration of temporary individual resistance. As the disease progresses dermal reaction to tuberculin diminishes. The reaction of most primates to tuberculin is similar to the reaction of man in the terminal stages of acute miliary tuberculosis.

In a group of 25 rhesus tested by me, we found 2 reactors in Mantoux and intrapalpebral tests. On the basis of experience with shipments from the same dealer, and postmortem findings, we should have had 50 per cent reactors.

Possibly a satisfactory test will be devised, which should have the following qualifications:

1. Ease of administration and interpretation (not requiring special technicians)
2. Requiring the use of a readily available tuberculin of standard manufacture
3. Requiring a minimum of animal restraint
4. Giving regular and satisfactory reactions
5. The test should be applicable to all primates so that it could become standard.

Complement-fixation has been suggested, but the routine collection of a satisfactory serum sample from all primates would be extremely hazardous. The Mantoux test is difficult to apply because of extremely thin vascular skin. We have found the belly the best field to be shaved. Here skin can be picked up between thumb and finger and with care an intradermal injection can be made using a 28 gauge needle. The point of injection can be outlined with mercurochrome. The reaction, should it occur, can be definitely measured. The Von Pirquet test can be applied at the same site, using two types of tuberculin and plain broth. The scarified areas here also may be marked with mercurochrome and numbered. The intrapalpebral test is easily given, using the 1 c.c. tuberculin syringe and 28 gauge needle. The monkey is held on his back, arms behind him, legs extended. The lower eyelid is picked up with the needle point bevel up, the needle inserted and tuberculin injected to leave a lentil-sized raised area. The Calmette ophthalmic test is of course the most simple to give, and some report satisfactory results.[7] We have not had routinely satisfactory reactions with any of the described tests. We have used bovine type K.O.T. (synthetic media), 0.25 gm. per c.c.; human type tuberculin K.O.T., and also the dilution "C," 0.1 mg. per 0.1 c.c.; human tubercle bacillus protein MA–100, 0.01 mg. of protein per 1.0 c.c.; and Purified Protein Derivative (P.P.D.), using the human first strength dose of 0.1 c.c. containing 0.00002 mg. P.P.D.; and 0.1 c.c. containing 0.005 mg. P.P.D. second strength; and also double strength using 0.01 mg.[6] Even the concentrated tuberculins failed to produce a reaction in known tuberculous monkeys. The subcutaneous test depending on a systemic thermal response, applied to primates by Penrose, White, Brown, and Pearson of the Philadelphia Zoölogical Society,[8] is successfully used in the hands of Fox and Ratcliffe of the[9] same institution. The objection to it lies primarily in the long continued restraint necessary to establish the peak 3 P.M. rectal temperature and subsequent temperature reactions following the subcutaneous administration of tuberculin. The weight curve represents an important diagnostic criterion in all acute forms but it loses its value in the young growing monkey. Roentgenographs have real value but involve too great expense for routine tests. Some laboratories rely almost entirely on the relationship of weight curve to chest picture for a diagnosis. Probably 80 per cent of *My. tuberculosis* infection in primates is acquired between the time of capture and eventual delivery. A program of control which would aim first at importations should be instituted with federal control. Such a measure, however, would be entirely impractical until a satisfactory diagnostic test is devised. Sputum, if it can be secured, and stool concentrations are interesting sources of tubercle bacilli but routine dependence on these is not practical. Some primatologists

feel that they can identify the tuberculous animal by its appearance. In the course of its investigations a tropical laboratory destroyed 539 monkeys at large in the forest and never demonstrated a tuberculous lesion; however, the species investigated has a high incidence in its own captive group.

The order Primates should be an ideal source of study of tuberculosis from the epidemiologist's point of view. Contacts can usually be traced. It does not usually develop active immunity and presumably it comes from a tuberculosis-free community. The disease is usually epidemic during shipment and early handling and only becomes endemic where control measures are in force. The Philadelphia Zoological Society has proved that it is possible to maintain a tuberculosis-free collection where the disease had peak 20 years ago. It is understood that to establish tuberculosis in the primate as in man, large or repeat doses of virulent organisms are necessary to bring about an active infection, but when the disease becomes established in the primate its prospect of developing a passive congestion with resulting fibrosis and calcification is quite remote. If it had no resistance at all we might expect 100 per cent mortality, for certainly every primate in captivity has ample opportunity to contact small doses of *My. tuberculosis*. Old World monkeys are most susceptible; however, acute epidemics are possible in New World species. A tropical research institution experienced a tuberculous epidemic in its Spider monkey (*Ateles ater*) colony. All were destroyed and the colony reëstablished. The contact here was a known open case in the human attendant. There is apparently a zoölogical family and genus variation to resistance; however, the degree of susceptibility and subsequent active infection is dependent on the extent and degree of contact.

Unfortunately, all primates do not have a postmortem examination. The group that do are usually those valuable specimens in zoölogical gardens or the experimental monkeys in the laboratory that require an accurate postmortem report to complete the experiment. Some laboratories make a detailed report but seldom include a case history. A number fortunately do conduct a satisfactory examination and give pointed information, usually of a comparative nature, which should lend further impetus to the epidemiological investigation of human tuberculosis.

Deaths in young monkeys are usually found to be the acute miliary form and generalized, with outstanding pulmonary lesions. The older primate may have more extensive lesions with pulmonary caseation and cavitation, and caseous lesions in spleen, lymph nodes, and liver. We do not often see meningitis or bone involvement and serositis. Pott's disease is occasionally seen and recently we demonstrated a tuberculous serositis in a Hamadryas baboon (*Papio hamadryas*). Another of the same species had an actue tuberculous meningitis. A performing chimpanzee, 5 years old, had a tuberculous meningitis with cerebellar infiltration. Tuberculous pneumonias are common, especially in the anthropoid apes. It is decidedly uncommon to have fibrosis with calcification. Scrofula is occasionally seen. In all probability the older primate has developed some resistance and consequently the organism produces larger and more extensive lesions than in the young. Routinely, sections should be cut from suspected tissue, especially lung. Much gross atypical tissue proves to be tuberculous. Most laboratories routinely make a gross observation and attempt to demonstrate acid fast organisms.

Where guinea pigs have been injected and tissue concentrates cultured, the human type of bacillus has usually been found.

To assure a good source of tuberculosis-free primates for zoölogical gardens and laboratories, we recommend that the local dealer be advised of the necessity of improving the primate hygiene immediately after capture. The monkey must avoid contact with human open cases and be held in smaller groups than is the custom (maximum: 10 in a cage). Where possible the shipping crates and holding cages should have some form of open mesh floor to prevent contact with tuberculous stools. A satisfactory disinfectant should be used routinely. All sick and suspected open cases of tuberculosis are to be isolated or destroyed. The use of a diagnostic test is not recommended at this stage, inasmuch as the most reliable subcutaneous test, with thermal reactions, could not be conducted practically.

The experienced animal dealer and keeper recognizes a sick monkey—if not tuberculosis—and it is our belief that those monkeys which are disseminating organisms will demonstrate either respiratory symptoms, draining scrofula, or diarrhea. These monkeys should be destroyed or isolated. It is most difficult on shipboard to remove one or more dead or sick specimens from a small crate, 2 by 3 feet, with 30 to 50 young *M. mulatta* active and alert awaiting an opportunity to leap out. Monkeys enjoy and need their mutual warmth but they will have a greater survival rate if they are given more room. The shock of capture, crating, holding, and eventual shipping to a new life zone can most satisfactorily be cared for by giving best possible food with the necessary vitamin supplements. The time consumed in transport should not be considered as part of quarantine because it is not a tuberculous quarantine at all, but a period of likely exposure. When the shipment arrives at the port of destination a further physical stress is experienced in the transfer from ship to dealer's quarters or to train for final destination.

Holding quarters in metropolitan areas are poor. There is a general lack of sanitation. The lack of satisfactory disinfection is often due to improper claims by the manufacturer or his representative. The efficiency of their product is usually determined by its ability to replace an obnoxious odor with a pleasant one. The standard 4 per cent solution of liquor cresolis comp. U.S.P. used hot makes an efficient cleanser and disinfectant. Coal tar derivatives are well tolerated by primates. Often an odorless disinfectant is desired and according to the U. S. Department of Agriculture, *Circular Letter 1750*, B.T.B. (Sodium orthophenolphenate) used in a hot aqueous solution, 2 per cent by weight, is quite satisfactory for the specific destruction of *My. tuberculosis*. If unpainted stainless steel or galvanized metal is used in cage construction, lye 1:200 is quite satisfactory. Concrete makes cheap permanent construction but is too damp, cold and uncomfortable for monkeys. Paraffin-saturated wood, rubber compositions, cork block, or especially compounded materials are used with success. The most satisfactory floor from a sanitary standpoint is the electric weld 12–14 gauge wire with ¾″ squares for small monkeys, 1¼″–1½″ for larger animals. In permanent buildings structural glass or smooth finished plaster walls and ceiling are recommended. Sheet metal is best for the temporary or portable cage. It is also important to avoid contact between the primate and the visitor in the zoo. The most effective method is to erect a full glass partition between them. This method prevents the pas-

sage of various upper respiratory infections to the monkey from man, in addition to preventing the carriage of pathogens on food from visitor to exhibit.

We can approximate the number of primates sold annually from the estimated and actual sales figures of the Eastern dealers; *Macacus* sp. 25,000 (*rhesus* and sp.); anthropoids 250; all others 10,000. The incidence of tuberculosis is likewise a relative figure, probably exceeding 50 per cent, including latent forms, and 5 per cent open cases. There are major inaccuracies in our submitted figures. We know that the majority of *M. mulatta* originate from the same dealers, and we do not believe it possible to have 95 per cent tuberculosis infection with approximately 30 per cent acute phthisis in one group and a negative report from another—all monkeys originating from the same dealer. The incidence of tuberculosis is apparently directly proportional to the accessibility of a competent pathologist. We do not propose to state that all primates die as a result of *My. tuberculosis* infection. Trauma with or without septicemia, common cold, and bacillary dysentery cause many deaths.

Let us critically review the experience of typical buyers. A zoölogical society received 200 *M. mulatta* to populate a monkey island. Ten days after receipt they experienced 10 per cent mortality. During the course of the summer 125 monkeys died. All deaths were attributed to acute tuberculosis on pathological diagnosis by a competent pathologist. A physician who purchased 40 *M. mulatta* for experimental surgery had a 50 per cent loss attributed to tuberculosis before his experiment was complete. A city laboratory lost 30 per cent of a group during the course of titering poliomyelitis pooled sera. A state institution found 98 per cent tuberculous lesions in all *M. mulatta* that died or were destroyed, with a major incidence of active infection. The dealer is, usually, not knowingly, a party to the sale of animals with infectious disease. He is sincere in his belief that he is selling a normal specimen.

The zoölogical garden's aim is longevity. Consequently because of a long quarantine, attempted early tuberculosis diagnosis, a definite sanitary program, and best possible nutrition, it usually has a lower incidence of infection than the experimental laboratory.

SUMMARY

Primate tuberculosis and its pathological forms have been a major problem as long as *My. tuberculosis* has been recognized. It has become both an economic and public health problem. Its incidence has not decreased, because of lack of genetic resistance and poor hygiene. The 10,000 per 100,000 mortality rate is 200 times that of man. The human type of organism is usually demonstrated. There is family and genus resistance variability but no measured resistance within a species. Antemortem recognition of the disease in the order of popular application consists in

1. Physical examination
2. Weight curve
3. Subcutaneous tuberculin test with thermal reaction. Mantoux and related tests are not routinely successful. (The primate has an indifferent allergic response to tuberculin.)
4. Roentgenography (usually in combination with weight curve)

Postmortem diagnosis consists routinely in demonstrating an acid fast organism (usually primary Ziehl-Neelson stained smear, occasionally animal inoculation or culture with subsequent smear) from typical lesions (histopathological if gross lesion is atypical). Better shipping hygiene with improved final housing and avoidance of contact with open cases

in primate or man, are most important if the incidence of acquired primate tuberculosis is to be lowered.

REFERENCES

1. Hoare, E. Wallis. *A System of Veterinary Medicine*. Balliere, Tindall and Cox, London, 1913. p. 109.

2. Calmette, Albert. *Tubercle Bacillus Infection and Tuberculosis in Man and Animals*. Williams & Wilkins Co., Baltimore, U. S. A., 1923, p. 346.

3. *Proceedings and Report of Zoölogical Gardens*. New York Zoölogical Society; Zoölogical Society of London; Philadelphia Zoölogical Society; etc.

4. Harry M. Wegeforth, M.D., President of the Board of Directors of the Zoölogical Society of San Diego, Calif.:

"In my travels in the Orient I found a high incidence of tuberculosis in the native population . . . Native monkeys adjacent to populous areas do make contact with tuberculous sputum. Herbert C. Clark, Director Gorgas Memorial Laboratory, Ancon, Canal Zone, has killed 539 monkeys in their native forest and has never demonstrated tuberculosis in the native troupe."

5. Frost, W. H. How Much Control of Tuberculosis? *A.J.P.H.*, 26, 8:764 (Aug.), 1937.

6. Whitney, J. S., and McCaffrey, I. A Summary of the Results of Group Tuberculin-testing with P.P.D. in the United States. *Am. Rev. Tuberc.*, 35, 5 (May), 1937.

7. Hamerton, A. E. Report on the Deaths Occurring in the Society's Gardens During the Year 1935. *Proceedings Zoölogical Society*. London, Part III, 1936.

8. Fox, Herbert. *Diseases in Captive Wild Mammals and Birds*. J. B. Lippincott, Philadelphia, 1923, p. 519.

9. White, C. Y., and Fox, H. Results of Tuberculin Tests in Monkeys at the Philadelphia Zoölogical Garden. *Arch. Int. Med.*, 4, 517 (Dec.), 1909.

American Verbosity

THE responsibility for American verbosity, I feel sure, lies with the very efficient American stenographer, and the temptation to garrulousness provided by the skill of her fingers. In some offices it seems that letter-writing has become a major undertaking, like writing for publication, and not a means to an end. There is no one who appears to be quite so well satisfied with the result of a day's work as the American business man who has dictated so many letters that his secretary has to work overtime transcribing them. The first practical evidence I had of the existence of the depression in America came when I noticed that the letters I received were fewer and shorter. Obviously, it had been necessary to reduce the staff of stenographers. Business must be improving now, the letters are growing in frequency and length and will soon be what they were in 1928.

It is my candid opinion, after reading these letters for about 20 years, that half the typewriters in America could be scrapped and half the stenographers married off, and the wheels of business would run just as fast and with a good deal less noise and waste effort. Businesses in other countries are conducted successfully with only a fraction of the amount of correspondence Americans appear to find necessary. Every man whose business it is to dictate letters should be compelled to read over, at the beginning of every business day, the copies of the letters he dictated one year before and see for himself how many of them were twice as long as necessary, and how many were not necessary at all.—Carl Crow—Harpers', June, 1937.

Industrial Hygiene Applied to the Clothing Manufacturing Industry

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THE development of an industrial hygiene program in the Baltimore City Health Department was contemplated in 1931 and an opportunity to inaugurate actual field studies was presented during 1932 when the department was called upon to investigate alleged insanitary working conditions in some of the clothing manufacturing establishments in Baltimore. The Commissioner of Labor and Statistics of Maryland furnished a list of establishments in which the working environment might be found to be unfavorable. Inspections were made of this group of 206 plants, attention being given first to such items as were considered of most health significance, such as carbon monoxide hazards, the use of the common drinking cup and the common towel, and secondly to sanitation, lighting, and ventilation. Conditions found in many of the plants demonstrated the need for a study of the working environment in all establishments engaged in the manufacture of clothing.

In 1933, 3 inspectors of industrial hygiene were appointed in the Health Department. After a brief course of training in industrial hygiene they were assigned the task of making a survey of all clothing manufactories in the city. A survey card was designed to be used by the inspectors and included information pertaining to accident and health hazards, sanitary facilities, general sanitation, lighting, and ventilation. The data from the cards were tabulated; and the percentage of establishments showing the different types of unsatisfactory working conditions are shown in the table. Comparison of these figures with those for 1932 indicated that carbon monoxide hazards were quite prevalent throughout the industry while insanitary working conditions were confined to a relatively smaller percentage of the plants.

Under a state law all clothing manufacturers are required to obtain a permit for operation from the State Commissioner of Labor and Statistics. It was agreed that these licenses be issued annually and would not be renewable unless the manufacturer coöperated with the Health Department by correcting unsatisfactory working conditions. To obtain improvements and to eliminate health hazards letters were written the managements of plants outlining the conditions which needed correction, explaining their relation to the health and welfare of their employees. These letters were followed up by visits to the plants, at which time further explanations of the contents of the letters were given and the interest and coöperation of the plant officials were solicited.

A second complete survey of the industry was made in 1934 to ascertain the effectiveness of the educational procedure carried on to obtain improve-

ments in working conditions. The results are given in the table and show a marked improvement in most of the conditions tabulated and demonstrate the value of educational efforts in an industrial hygiene program.

To determine the effectiveness of the program another complete survey was conducted during the winter months of 1936–1937. The results are also given in the table. While they show some improvement over the 1934 survey they indicate that attention need be concentrated on only a relatively few plants instead of a large percentage of the establishments.

The clothing manufacturing industry in Baltimore is composed of over 400 establishments employing from 2 to more than 100 employees. Of the 428 establishments inspected in the 1936–1937 survey 44 per cent employed 10 or less workers while 33 per cent employed between 10 and 50. Only 10 per cent of the plants employed more than 100 persons. With the industrial improvement during the last few years there has been a tendency toward moving into larger and more suitable quarters, with attending improvement in the general working environment.

Because of the prevalence of potential carbon monoxide hazards in the clothing manufacturing industry in connection with the use of gas fired hand irons for pressing and gas fired boilers considerable study was given these appliances. Actual determinations of the concentrations of carbon monoxide at breathing levels with the carbon monoxide indicator were carried out in a number of instances during all the surveys and in some cases concentrations above the physiological limit were found. These were generally due to leaky gas tubing, deterioration of appliances and defective venting of gas fired equipment. After corrections

TABLE I

Surveys of the Clothing Manufacturing Industry *

	1932	*1933*	*1934*	*1936–1937*
Number of establishments	206	462	445	428
Number of employees		12,882	17,451	17,606
	Per cent	*Per cent*	*Per cent*	*Per cent*
Carbon monoxide hazards:				
Defective tubing	37	32	16	7
Defective venting	9	5	8	2
Common drinking cup	23	16	3	3
Common towel	26	7	2	1
Lighting, artificial—glare	18	54	..	11
Lighting, inadequate	15	24	5 †	1 †
Ventilation, fair or poor	20	5	4	1
Washing facilities, inadequate	20	1	2	1
Toilet facilities:				
Insanitary	43	14	8	6
Defective	12	9	5	6
Inadequate	19	10	4	4
Not ventilated	20	26	14	2
Sanitation, general, poor	27	3	2	2
Floors, insanitary	32	8	..	..
Walls and ceilings, insanitary	24	4	..	3
Hallways, dark	17	3	2	1

* Percentages refer to establishments
† Sight Meter readings on work-plane

were made subsequent tests were carried out to insure elimination of the carbon monoxide hazard.

SUMMARY

A study of working conditions made during 1932 in a representative number of clothing manufacturing establishments revealed the existence of health hazards in addition to insanitary conditions in a significant percentage of the plants. By applying educational efforts in the form of reports to and conferences with responsible plant officials marked improvements in the working environment were attained. The results of this application of industrial hygiene services to the clothing manufacturing industry over a period of several years are shown in the table.

Nutrition

IN routine examinations, physicians differ widely in their estimates of the nutritional status of the same children.

The differences in judgments are so great that estimates based on a single examination are of little value in determining the relative amount of malnutrition among any group of children at any one time or changes in the amount from one time to another. Neither are these nutritional estimates reliable bases for determining which children of a group are malnourished.

It is therefore suggested that practical nutritional programs be focused on correcting the faulty food habits of children rather than expending energy on routine examinations to determine nutritional status. It is also proposed that research workers concentrate on the construction of valid methods of determining nutritional status rather than making surveys which are of doubtful significance because of the inaccuracies of the estimates upon which their findings are based.—Reliability of Medical Judgments on Malnutrition, by Mayhew Derryberry, *Pub. Health Rep.*, Vol. 53, No. 7, February 18, 1938.

Necropsy Evidences on the Relation of Smoky Atmosphere to Pneumonia*

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THIS report represents another step in the program of studies made over a number of years by an interested Pittsburgh group in an effort to find the relation which they feel exists between the local smoky atmosphere and the high death rate from pneumonia. Most of the more recent studies on the effects of dust have dealt with various forms of industrial pneumoconiosis. Clinical investigations of employees, group surveys, and roentgenologic examinations of large numbers of workers engaged in like occupations and supplemented by animal experimentation have united to advance our knowledge of the importance of air pollution on the health of industrial workers, but the fact that there are milder changes in the respiratory systems of persons living in smoky and dusty atmospheres which appear to influence health has received only casual attention.

Pittsburgh presents an unusual opportunity for the study of the relation of smoke to pneumonia for two reasons: The annual death rate from pneumonia is higher than that for the State of Pennsylvania, and the atmosphere is laden with dust and smoke, particularly during the fall and winter months when the rate is highest. Several efforts have been made to show whether the relation is that of cause and effect or merely coincidence, and it is our present purpose to review the evidence accumulated and to add to it the data acquired through the analysis of the findings in the lungs of 3,000 persons dying from various diseases in Pittsburgh hospitals. The examinations were made for the purpose of determining the kinds and extent of lung changes and the amount of visible dust deposits. It should be emphasized that this series of cases does not comprise an industrial group but represents a cross-section of the general inhabitants, including women and children as well as representatives of the professions and those of dusty and non-dusty trades. After the first series, children under 10 years of age were omitted.

The first comprehensive study of Pittsburgh's smoke problem was conducted by the Mellon Institute of Industrial Research in 1911–1913.[1] In commenting on certain medical phases of the problem, White[2] called attention to the fact that the "smokiest" wards had the highest death rates from pneumonia. This observation was substantiated in sootfall studies made in 1923–1924 and 1929–1930 by one of us (Meller).[3] The statement could not be accepted as final until other environmental factors were in-

* Read before the Epidemiology Section of the American Public Health Association at the Sixty-sixth Annual Meeting in New York, N. Y., October 5, 1937.

vestigated for the reason that sections having the highest sootfall were in the valleys, along the rivers and railroads and in the vicinity of industrial plants where economic conditions and occupational factors sometimes complicated the picture. Moreover, sootfall alone cannot be taken as a perfect indicator of respiratory damage, since it includes those particles that fall by gravity or are brought down by rain, whereas it is only the very small particles (10 microns or under) that are retained in the lungs.

A second observation [10] made during the early investigations was to the effect that a higher per cent of pneumonias than had been reported elsewhere failed to resolve in the usual way by crisis and healed by organization of the exudate in a way similar to the process of healing of an incised wound. It was suggested that this type of healing resulted from imperfect drainage of groups of air sacs due to the closure of lymphatic channels by dust deposits.

In addition to the sootfall studies mentioned, it has been noted from time to time that following periods of several days of continuous smog (mixtures of smoke and fog) the number of deaths from pneumonia is increased. This observation could easily be evaluated if incidence rates of a dependable character, rather than death rates, were available.

It is obvious, when suspended solids are considered, that the concentration at a given time depends largely upon three factors: volume of pollution admitted to the atmosphere, especially during the winter or heating season; the temperature, which controls to a large extent the amount of fuel used for heating purposes; and the velocity of the wind necessary to carry the smoke away. Observations with the Owens's automatic filter in use in Pittsburgh show that there is a high degree of correlation among these factors in the production of smog.

The data on weather conditions and the daily death rates from pneumonia have been kept for several years, and tables placing these facts side by side have been compiled. One difficulty has been to get a basis for analysis that can be depended upon. The first problem was to calculate the amount of time that must elapse between a smog period and the time at which its effects, if any, would be reflected by the pneumonia death rate. Meakins [4] states that where the incubation period of pneumonia is known, it is usually from 36 to 48 hours and that while resolution by crisis may occur any time from the 3rd to the 14th day, it rarely occurs before the 5th, and is more likely between the 5th and 9th days. Death may occur at any time, but generally is related to the critical period. With full appreciation that this period may vary more or less either way, we allowed 2 days for the incubation period and 6 to 8 days for the termination of the disease, and assumed that the period of 8 to 10 days would be the probable time for the rise in the death rate to appear.

Actually, periods of smog, during the winter months, are commonly followed after several days by periods during which an increased pneumonia death rate occurs. While these examples do not appear with sufficient regularity to be conclusive and do not always fall at the times they are expected, they are frequent enough to be suggestive. The following tabulations are examples of the relation of wind velocity, temperature, and smog to the death rate of pneumonia (see Tables I, II and Graph I).

VARIATION IN PNEUMOCOCCUS TYPES IN PITTSBURGH

Another angle to the problem has been the persistence for at least 15

TABLE I

Comparison of Wind Velocity, Temperature, and Pneumonia Mortality During Month in Which Smogs Occurred

Date	Ave. Wind Vel.	Ave. Temp.	Pneumonia Mortality 8th Day	9th Day	10th Day	Total 3 Days	
1928							
Dec. 9	5.9	26	8	8	7	23	
10	7.5	32	8	7	7	22	
11	5.3	39	7	7	13	27	Smog
12	2.7	38	7	13	4	24	Smog
13	3.7	46	13	4	5	22	Smog
14	4.8	45	4	5	17	26	Smog
15	6.4	44	5	17	13	35	Smog
16	5.2	48	17	13	15	45	Smog
17	15.6	44	13	15	9	37	
18	16.2	31	15	9	9	33	
19	13.1	36	9	9	10	28	
20	13.0	26	9	10	7	26	
21	9.3	16	10	7	20	37	
22	3.8	26	7	20	23	50	Smog
23	2.3	34	20	23	19	62	Smog
24	5.8	36	23	19	19	61	Smog
25	6.6	40	19	19	17	55	
26	5.5	38	19	17	25	61	Smog
27	6.7	40	17	25	13	55	Smog
28	10.3	38	25	13	17	55	
29	12.7	34	13	17	15	45	
30	8.5	29	17	15	12	44	
31	3.2	36	15	12	9	36	

GRAPH I

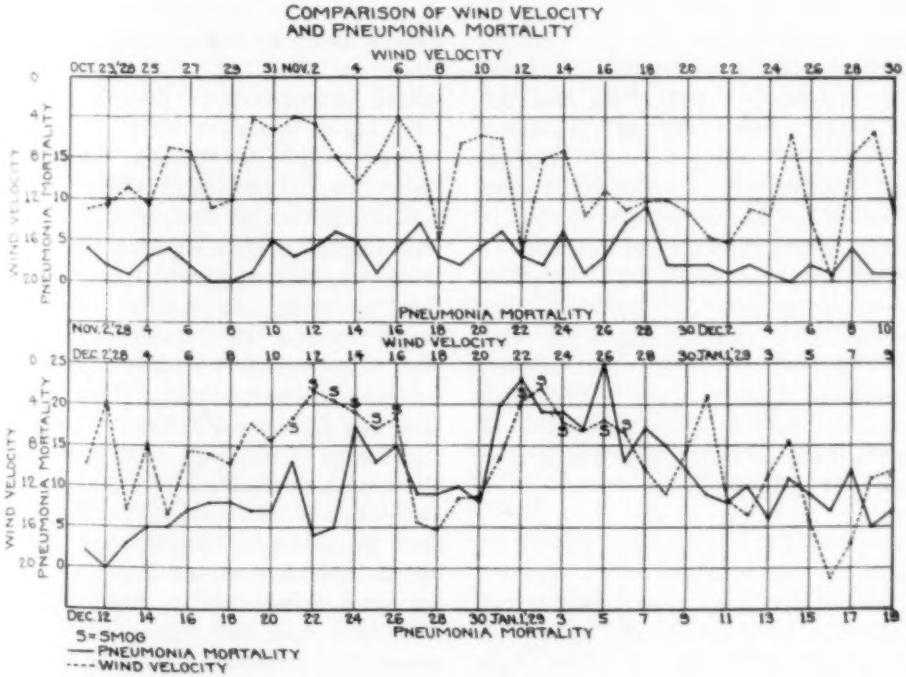


TABLE II

Comparison of Wind Velocity, Temperature, and Pneumonia Mortality

Date	*Ave. Wind Vel.*	*Ave. Temp.*	*Pneumonia Mortality*			
			8th Day	*9th Day*	*10th Day*	*Total 3 Days*
1933						
Oct. 11	12.2	57	0	3	3	6
12	11.3	57	3	3	2	8
13	7.2	48	3	2	5	10
14	4.2	47	2	5	4	11
15	6.4	56	5	4	1	10
16	12.6	62	4	1	2	7
17	10.4	54	1	2	2	5
1934						
Feb. 1	12.9	28	3	3	0	6
2	9.2	18	3	0	4	7
3	7.5	18	0	4	2	6
4	12.7	32	4	2	3	9
5	8.0	24	2	3	6	11
6	7.8	19	3	6	3	12
7	13.1	22	6	3	4	13
8	11.9	4	3	4	6	13
9	9.5	1	4	6	11	21
10	7.0	16	6	11	5	22
11	9.7	29	11	5	4	20
1936						
Jan. 4	10.8	40	6	6	0	12
5	14.0	32	6	0	2	8
6	8.3	35	0	2	7	9
7	8.8	37	2	7	4	13
8	15.5	36	7	4	5	16
9	11.4	42	4	5	3	12
10	10.0	36	5	3	5	13
11	7.5	38	3	5	6	14
12	10.4	41	5	6	4	15
13	17.2	42	6	4	3	13
14	8.8	39	4	3	4	11

years of more than 50 per cent of pneumococcus types in groups higher than the fixed Types I, II, and III. McMeans, 1918–1926,[5] and Robinson, 1925–1935[6-7] reported on typings made routinely on all pneumonia cases admitted to hospitals. Many of the strains less commonly recorded in reports from eastern cities have been found to be rather common and very virulent here. During the highly fatal epidemic of 1936–1937, the collected reports of typings from 7 Pittsburgh hospitals showed 65 per cent that fell in the group formerly classed as Rockefeller Type IV.

PITTSBURGH'S PNEUMONIA MORTALITY RATE

In the foregoing discussions several references have been made to the high pneumonia death rate. A review of the annual rates for males, females, and totals for the last 10 years is submitted in support of the statements (see Table III).

Prior to 1927 the rate was commonly more than 200 per 100,000 inhabitants, and in 1923 an all-time peak of 374.4 was reached. In comparing the city rate with that of Pennsylvania State, the Pittsburgh rate is often as much as 40 per cent higher. For 1935 the city rate was 140.5; the Allegheny County rate was 121.9; and the state rate was 83.5 per 100,000.

Meakins gives the death rate for women as generally higher than men and the ratio as about 27 to 20. The rates for males and females were computed separately in the hope that the influence of industrial factors would be brought out. The number of males exceeded the females each year for the

TABLE III

Ten Year Mortality Rate for City of Pittsburgh

Year	Males Per 100,000	Females Per 100,000	Total Per 100,000
1927	197.1	122.3	159.6
1928	238.1	186.5	212.6
1929	226.1	127.9	176.7
1930	224.3	125.7	174.7
1931	287.8	131.1	208.8
1932	166.5	126.1	146.1
1933	107.1	76.8	91.8
1934	169.8	99.6	134.5
1935	168.5	112.9	140.5
1936	210.1	125.2	167.4

time studied. The factors leading to the reversal of sex occurrence were not apparent.

It is further seen in the chart that during the years from 1932 to 1935 when the depression was at its height, when air pollution from industrial flues was greatly decreased and when economic and living conditions were at their worst, there was a great decrease in the number of deaths from pneumonia. However, the decrease occurred in females as well as males so that the change cannot be attributed to conditions within the plants, such as overheating and rapid chilling of the employees.

NECROPSY STUDIES

The accumulated facts brought out in the above review led to a search of the postmortem records of several large hospitals for additional data that might bear on the pneumonia problem.

As the first step, the lungs, removed at autopsy from 3,000 persons dying from any cause in our general hospitals, were graded microscopically for the amount of extraneous pigment and the resulting fibrosis. Later, the presence of "all forms" of pneumonia including bronchopneumonia, lobar pneumonia, hypostatic pneumonia and organizing pneumonia was recorded by grade. The analyses and gradings were made in 3 series. In 1933 Schnurer, Allison, Boucek, and Haythorn [8] published a preliminary report on the analysis of 2,499 postmortem examinations graded for "anthracosis" * on the following criteria:

Grade I. Carbon pigment phagocytes in alveoli. Few in perivascular lymphatics.

Grade II. Wide distribution of phagocytes—in all portions not averaging more than three rows of cells.

Grade III. Widespread distribution of phagocytes of three or more rows of cells. Moderate compression of cells by fibrous tissue.

Grade IV. Extensive distribution of phagocytes with fibrosis in peribronchial, perivascular and subpleural lymphatics.

Grade V. Excessive fibrosis and pigmentation—puckering of pleura—perivascular—peribronchial—and intra-alveolar accumulations of phagocytes.

The first report included consecutive autopsies from several large hospitals in the City of Pittsburgh † covering a period from 1912 to 1935.

The second series was made by Schnurer [9] who reviewed 342 cases at the City Home and Hospital at Mayview, about 8 miles from the city, and the tuberculosis camp of that institution.

A third series was graded by Haythorn on cases over 12 years of age during 1934–1935 in order to bring the total number of cases up to 3,000.

Table IV shows the separate gradings for each series and the total results for the 3,000 cases. The results were fairly consistent in each series. Series 1 and 3 were made up of general hospital cases and included the records of persons of all ages and walks of life. The second series was a limited group of indigents whose average age fell within the period of life at which pneumonia is most common.

* While the series contained examples of other forms of pneumoconiosis, such as bituminosis and anthraco-silicosis, the term anthracosis is used as the best known and at the same time the one least used in reporting industrial studies.

† Allegheny General Hospital, Mercy Hospital and Pathological Department of the University of Pittsburgh.

TABLE IV

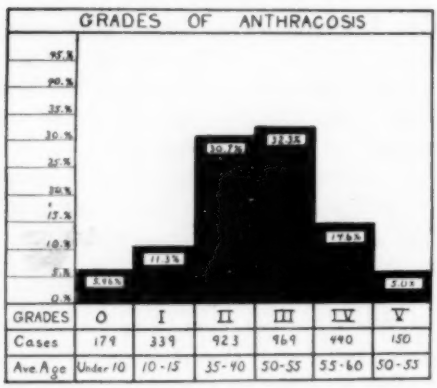
	Series 1	*%*	*Series 2*	*%*	*Series 3*	*%*	*Total*	*%*
Pigment Free	179	7.16	0	0.0	0	0.0	179	5.96
Grade I	289	11.56	30	8.77	20	12.57	339	11.30
Grade II	767	30.69	112	32.74	44	27.67	923	30.76
Grade III	778	31.11	146	42.69	45	28.30	969	32.30
Grade IV	354	14.14	46	13.45	40	25.15	440	14.66
Grade V	132	5.03	8	2.33	10	6.28	150	5.00
	2,499	99.69	342	99.98	159	99.97	3,000	99.98

The age factor is very important with reference to pneumonia incidence, and the average ages for the various grades were found to be: Grade 0, under 10 years; Grade I, 10 to 15 years; Grade II, 35 to 40 years; Grade III, 50 to 55 years; Grade IV, 55 to 60 years; and Grade V, back to between 50 and 55 years.

For comparison, the sex incidence had to be reduced to per cent rather than cases, since considerably more men than women were examined. The percentage sex-incidence was about equal for Grades I, II, and III, largely male for Grade IV, and almost entirely male for Grade V (see Chart 1).

Based on sex and age incidence, Grade IV was a mixed occupational and non-occupational group, while Grade V was definitely occupational and included 41 cases that had given their occupations as coal miners.

CHART 1



■ = Grades of Anthracosis

There was some unavoidable overlapping in Grades IV and V so that too sharp conclusions could not be drawn in separating them.

VARIETIES OF PNEUMONIA INCLUDED

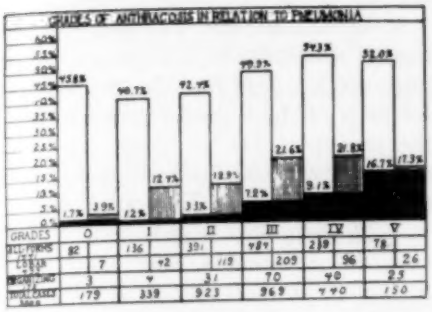
It is not always possible to differentiate the various forms of pneumonia, either clinically or by microscopic examination. In contrast, lobar pneumonia is a definite clinical and pathological entity. Therefore, in Chart 2, the occurrence of pneumonia is classified as "all forms" including bronchopneumonia, lobar pneumonia, septic pneumonia, hypostatic pneumonia, and organized pneumonia. Lobar pneumonia was then tabulated separately in another column. Organization was accepted when areas of healing with the formation of new vessels and proliferating fibrous elements were present in the alveolar exudates but was excluded when found to be associated with infarction, gangrene, chronic empyema or tuberculosis.

Separate tables were prepared to show the pneumonia incidence by grades for each of the 3 series, but the differences found were slight and do not justify their inclusion in the report. Only the composite totals are shown in Chart 2.

While pneumonia in some form was present in 47 per cent of the cases, it must not be forgotten that the entire group was made up of hospitalized, sick patients and that many of the pneumonias were terminal infections rather than primary diseases.

In trying to answer the question as

CHART 2



to whether anthracotic deposits in the lungs predispose to pneumonia or tend to make it more fatal, we compared the lesions with the relative mortality as it was found in the several anthracotic grades.

The per cent of pneumonia "all forms" was quite constant in Grades 0, I, and II and ranged from 40.7 per cent to 45.8 per cent. The average age of each of these grades was under 40 years, before which time pneumonia is generally less fatal than in later years. In contrast, the average ages for each of Grades III, IV, and V fell between 50 and 60. Yet, the rate was 49.9 per cent in Grade III, 54.3 per cent in Grade IV, and 52 per cent in Grade V, suggesting that factors other than age were needed to explain the differences in per cent between the latter 3 grades.

Theoretically, lobar pneumonia should have been a better index than "all forms" since it is less frequently a terminal infection. Here again, definite conclusions could not be drawn because the age factor could not be evaluated. Grouping Grades 0, I, and II, there were 1,441 individuals included and only 168 of the 499 cases of lobar pneumonia found in the 3,000 records studied. Since it is well known that pneumonia in children and young persons almost always heals by crisis, the fact that the lymphatics had not been seriously damaged in these earlier groups may have been a factor.

Beginning with Grade III, the pneumonia age was entered, and the lobar pneumonia incidence rose from 12.9 per cent to 21.6 per cent. In Grade IV it remained constant at 21.8 per cent, and in Grade V it receded to 17.3 per cent. The decrease may have been apparent, due to the fact that Grade V included only 150 persons and was too small for conclusions.

When organizing pneumonia was studied, significant facts began to appear. When Grades 0, I, and II are combined, the number of instances in which organization was found to be present was only 2.63 per cent. When Grade III was examined, not only was it found that the pneumonia incidence had increased, but there was a very appreciable amount of blockage of the lymphatics and an accompanying rise in the incidence of organization to 7.2 per cent. In Grade IV the lymphatic blockage was progressively greater, and the organization incidence again increased to 9.1 per cent. By the time Grade V was reached, there could be no doubt about increased incidence of organization, since it reached 16.7 per cent, and all of the 3 series of gradings, made separately, showed comparable advances.

Grade V appeared to be an industrial group. The lungs showed heavy, black pigment deposits in the subpleural, peribronchial, and perivascular lymphatics with definite microscopic, fibrous tissue changes and small emphysematous pockets in the air sacs about the fibrous thickenings. Of the 150 cases in this group, 25 presented

greater or lesser areas of exudate undergoing healing by organization.

Two of many things may have contributed to the organization: The closed lymphatics may have made healing by crisis difficult by decreasing the facilities for drainage and the small areas of emphysema may have been foci of relative inactivity during the respiratory expansions of the lung tissues. While it has not been shown that the expansile action has anything to do with the rapid resolution of the pneumonic exudate, it is likely that it does.

There were a few instances of anthraco-silicosis in Grades IV and V, but these did not seem to show any greater amounts of organization than did the lungs with the black, almost non-crystalline pigment deposits.

There could be no doubt that organizing pneumonia was more prevalent in the high grades of anthracosis, although the evidence as to whether the relation is that of cause and effect was not proved.

CONCLUSIONS

1. The protocols and microscopic sections of 3,000 necropsies were reviewed, the cases separated into pigment-free lungs and 5 grades of anthracosis depending upon the amounts of extraneous pigment and the fibrosis present. Grades 0, I, and II appeared to have no particular occupational basis. Grade III was a mixed non-occupational and occupational group. Grades IV and V were largely, although not exclusively, occupational.

2. The incidence of pneumonia "all forms" and of lobar pneumonia was tabulated in relation to each grade of anthracosis. In spite of the high local pneumonia death rate, no anatomical evidences of a relation between the incidence of pneumonia and the milder grades of anthracosis in the non-occupational groups could be demonstrated.

3. In Grades III, IV, and V there was a definitely higher percentage of pneumonia cases, but the average age for each of these grades coincided with the period of life at which the pneumonia death rate in less smoky communities is likewise highest.

4. Healing by organization of unresolved pnuemonia was consistently higher in all of the more advanced grades of anthracosis and greatest in Grade V. The organizing foci appeared to be associated with heavy pigment deposits, microscopic areas of fibrosis, and isolated emphysematous pockets in fibrosed portions of the lungs.

5. Nothing tangible was found to connect the pigment deposits with the high pneumonia incidence and high mortality rates, but the association of severe anthracosis and healing by organization formerly reported was verified.

REFERENCES

1. Papers on the Influence of Smoke on Health. Mellon Institute *Bull. 9*, University of Pittsburgh, Pittsburgh, Pa., 1914.

2. White, William Charles, and Marcy, C. H. A Study of the Influence of Varying Densities of City Smoke on the Mortality from Pneumonia and Tuberculosis. *Trans., Fifteenth Internat. Cong. of Hyg. and Dem.*, Sept. 12, 1912.

3. Meller, H. B. *Mech. Eng.*, 48, 11a:1275–1283 (Mid-Nov.), 1926.

4. Meakins, J. C. *The Practice of Medicine*. Mosby, 1936.

5. McMeans, J. W. Incidence of Pneumococcus Types in Pneumonia in Pittsburgh. *Atlantic M. J.*, 30:499–503 (May), 1927.

6. Robinson, G. H. The Immunologic Relations of Type IV Pneumococci Obtained During an Epidemic. *J. Infect. Dis.*, 41:417–22 (Dec.), 1927.

7. Robinson, G. H. The Incidence of Various Types of Pneumococci as Found at the Allegheny Gen. Hosp. Read before the Pittsburgh Clinical Path. Soc., Nov., 1935.

8. Schnurer, L., Allison, W. C., Boucek, C. M., and Haythorn, S. R. Pneumoconiosis in the Pittsburgh District, etc. *J. Indust. Hyg.*, 17, 6:294 (Nov.), 1935.

9. Schnurer, L. Further Studies on Pneumoconiosis to Respiratory Diseases. Accepted for publication in *J. Indust. Hyg.*

10. Haythorn, S. R. Some Histological Evidences of the Disease Importance of Pulmonary Anthracosis. *J. Med. Res.*, 29, 2:259–279 (Dec.), 1913.

Physique and Health

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THE thesis frequently put forward in these days that the growth in social institutions lags behind the development of industrial and economic organization would find analogy in the monograph, ***Physique and Health,*** by Dr. C. Wroczynski.[1] He contends that man lags in acquiring physique and health. But the doctor, who is Chief Medical Adviser to the Ministry of National Education, Warsaw, is not as pessimistic as the Bishop of Calcutta who wrote, "every prospect pleases, and only man is vile." Apparently we seemed to be doing very well for some years, and then we began to slip. "Despite the strain of the changing conditions of life, it seemed that, thanks to the advance of civilization, the human body might develop towards a state of perfection. Most of the immediate dangers arising out of physical and social emergencies had been removed, the average length of life was increasing, the causes of early death were being overcome. All that remained then was to continue along the same lines."

But somehow or other we have failed to do so. From an extensive inquiry among scientific persons in 9 European countries, many data are assembled attesting to the physical deterioration of man. The number, kind, and range of physical defects among children and adults are presented; the percentages reported are disturbing. There are indeed too many malnourished, rickety children in the world; needless dental caries, postural and muscular weaknesses abound; and the increase of nervous, maladjusted, and neurotic individuals alarms thoughtful persons. But the case is not strengthened by exaggeration. It is bad enough even if not growing worse; the evidence is not available that "man is undergoing profound and rapid biological changes." At all events Wroczynski thinks he is and inquires into the responsibility of physical education in the matter.

The rôle of physical education in the development of physique and in the correction of physical defects has a long and interesting history. The Ling gymnastics of Sweden arose in response to just these conditions that Wroczynski describes. We may agree with Voltaire that perfection comes slowly, but the purpose to use physical exercise in quickly rehabilitating degenerate man runs through the whole European effort in physical education.

Obviously there are two ways of looking at the biologic problems of human life. One is represented in Wroczynski's report. He writes, "Up to the present, modern methods and systems of physical education . . . have not produced on the health of the masses any effect demonstrable by statistical methods. To tell the truth gymnastics and sport are not practised on scientific lines." In the United States a similar view is voiced at times.

It is even recommended in all seriousness that a measurement of muscular strength is an index of health. In this view the chief and often the sole purpose of physical education is body-building, correction of a great variety of physical defects, and the development of a body that will resist disease, live long, and be a constant source of delight to the artist.

McCloy has recently written that he believed that a P.F.I. of 120 would be of more value to more people than to score 72 in golf in 18 holes. This view from a functional and living point of view seems wholly irrational. And yet, it should be remembered of course that there are achievements in physique that flow directly from physical activity. The superficial evidences are muscle size, strength, and posture; the deeper ones relate to organic vitality. But Wroczynski properly observes that while longevity is a Mendelian trait and hence appears to be fixed, "characteristic measures of hygiene and cultural progress have made it possible . . . to prolong the age of life beyond the age of sixty." This would support the statements of McLester and Sherman that length of life may be extended by proper diet. But the rôle of physical education in this advance is negative, and one must agree with Clendening in his doubt that exercise promotes longevity. Nevertheless physical activity of almost any kind in contrast with no activity will result in changes that are measurable in growth accelerations, in strength gains, and in developed coördinations.

Of course these are not health, nor even indications of health. Apparently, one of the most difficult concepts to acquire is that of health. Most persons conceive health to be as much a concrete, clinical entity, as its contrasted forms in disease. Thus, there has been associated with the idea of health the notion of a full-chested physique, muscular strength expressed as a norm, anthropometric measurements, and similar objective indices. On the contrary, health is essentially qualitative; it is a condition of *functioning* that flows from life processes. To associate *physique* in its usual structural meaning with *health* is erroneous and Wroczynski recognizes this when he defines physique: "A good physique is the composite effect of all the physical forces, of the harmonious functioning of its many organs, of the highly complex chemical and physical processes that go on in the human being." This functional definition might be improved by eliminating the restrictive "physical" forces, and emphasizing the total situation, as follows:

A good physique is the harmonious product of the correlated functioning of the highly complex physical and chemical processes of the organism in relation to the insistent play of innumerable forces, both favorable and unfavorable, of the environment.

This functional definition suggests the other way of looking at man's biologic problems in living. Instead of indices of strength, we seek interests and skills. Not muscle size but muscle habits are important. In this view then we do not exercise muscles to strengthen them, but we engage in activities the pursuit of which strengthens muscle. Both result in the muscle gaining strength, but the difference is profound. Sedentary life is a problem. The direct attack is to provide exercise for sedentary workers. And yet there is another way. It is possible to educate boys and girls so thoroughly in satisfying and enjoyable activities that they will be persuaded to continue them after school days are over. It is possible to secure more and adequate opportunities for recreational activities. It is possible to awaken in people a love of the out-of-doors, to let children

learn the never to be forgotten lessons that come from real experience with the creative forces of nature. It is possible to develop interests and skills in activities that enrich the whole of life, that habituate people to a way of life rather than to a concern for and care of muscles, bones, and bowels. Moreover, this approach is not blind to the facts. It would not ignore the defects of structure and function that are remediable by exercise. The corrective classes in schools and the restricted groups in colleges attest to the purpose and ability to use the therapy of special exercise when it is called for. But it would refuse to establish general educational policy based upon the limitations of abnormal children.

The extent to which defective structure and function is held as a standard is well illustrated by Roger's contention that competition in sports seeks to humiliate opponents and therefore should be abolished. It should be noted that while some persons may be humiliated when they lose, there is no humiliation unless a faulty education has taught them to expect to be always right and never to lose. Persons who are humiliated when they lose in games need special care exactly as do others who are timid, shy, secretive, unduly sensitive, fearful, and vain. To set a standard of social activity that is based upon the abnormal response of a player who is humiliated when he loses would correspond to establishing a diet based upon carious teeth and inability to masticate, or a standard of honesty based upon the behavior of a kleptomaniac.

It is obvious then that the educational approach for physical education does not ignore individual differences. It agrees with Labbé that physical education should consider the requirements of age, sex, and constitutional aptitude, and also the preferences, traditions, living conditions, and climate of a country. There are some desirable norms in structure and function that can be used, but as Wroczynski points out the work on children is concentrated too largely on the first year of life, "as if normal growth were confined to that period." Research on functional norms is needed.

There are many interesting technical points presented. An American reader of this excellent monograph will be surprised at the recommendation that medical supervision of sport should be *introduced*. In the United States medical supervision of sport goes back to the early work of Hitchcock at Amherst that began in 1861 and widely prevails in colleges and universities today. But Wroczynski's argument for medical and scientific study of students, not only "to determine general fitness of each" but also "to bring to light his particular constitutional aptitudes" and needs point the way for progress in medical supervision in this area. Increase in height over several generations shows substantial gains for the Netherlands and the Scandinavian countries, and, using the army figures, the United States shows none. If, however, the data of American college men and women were used the improvement would be marked. It is refreshing to read the comment on breathing exercises: "It may be doubted whether deliberate aeration of the lungs is really useful," and Busing's opinion that for young people today, "foot gymnastics are more important than the respiratory gymnastics that are so generally employed and so highly recommended." Some day all physical educators in the United States will learn the simple physiology of the matter and will understand breathing in relation to function.

The conclusion that "an adequate range of free movements repeated several times during the day under natural conditions (not in classrooms),

is more effective (for growth) than any kind of artificial, indoor gymnastics," agrees with competent American medical and educational judgment. American coaches would do well to reflect upon the statement: "The one established point seems to be that serious competitive athletics are forbidden to boys under 18." We are more conservative in the United States with our girls and women than with our boys and men. Chailly-Bert and Bensidoun recommended high jumping for girls and women and the former advises 1,000 meter cross-country races for women. Neither proposal would be accorded agreement here.

The monograph is challenging; the range of topics discussed is wide; the European data are well sampled. Either physical education shall be organized on the basis of human defects or with respect to kinds of living that can go on. In the decision perhaps an American, most of all, would be helped by Lin Yutang's recent book, *The Importance of Living*. In any event there are two attitudes in modern life. One leads to work, to factory, to office, to desk, with the hope of buying happiness with the money that is earned, and with unwarranted reliance upon special exercises to correct the physical deficiencies of life. The other attitude leads also to vocational effort that secures the necessities of independent, self-sustaining life, but around the margin are play and recreation that are also a part of life, just as vital as work that is needed to be done and that all wish to do. In this adventure in human living, physical education may always be an interpreter of living, an awakener of interests for leisure time, a teacher of skills that function, and a leader to the out-of-doors. It is for physical education to decide which road shall be travelled by man in the varied experiences of life. The gates are open. The highway is ahead.

REFERENCE

1. *Bull. Health Organization*, League of Nations, VI, 4, August, 1937.

Making Britain Safe for Youth

WE keep thinking about the British censor's opinion that "Snow White" is unsuitable for children under 16; can't get it out of our head.

"Mother, may we go to see 'Snow White'?"

"No, dear, it's too gruesome. Why don't you and Tommy play some nice quiet game? Why don't you go to the nursery and practice your gas-mask drill?"—From the *New Yorker*.

Problem of the Causes of Stillbirth*

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EVERY year more than 77,000 stillbirths are registered in the United States. This number, however, represents only a part of the total number of fetal deaths, since registration of products of conception of periods of gestation before the 5th month is not required in most states. There are, in addition, more than 63,000 infant deaths annually that are due to natal and prenatal causes, 89 per cent of which occur in the 1st month of life. These serious losses of life in the fetal and neonatal periods are causing great concern, particularly in the presence of a low and falling birth rate. In connection with these problems it must be pointed out that the stillbirth rate has not decreased appreciably in recent years and that mothers whose infants are stillborn die much more frequently than mothers whose infants are live born.

Statistics issued by the Bureau of the Census do not, however, show the real magnitude of the problem. Registration of stillbirths is incomplete practically everywhere in the United States. There is no single definition of stillbirth in general use, and the period of gestation required by law in the different states for reporting stillbirths varies widely. Furthermore, information with regard to causes of stillbirth is unsatisfactory because there is no acceptable classification of causes of stillbirth which include rules for assignment of cause.

Numerous reports dealing with causes of stillbirth are found in the literature, but their usefulness is limited because in only a very small proportion of them have comparable bases for analysis been used with respect to period of gestation and definition of stillbirth.

Because of the seriousness of the stillbirth problem and the lack of information on causes of stillbirths, the Children's Bureau in March, 1936, in coöperation with the Sub-committee on Stillbirths of the American Public Health Association, undertook a study of a large number of stillbirths occurring in hospitals. The objectives of the study were: (1) to obtain accurate data which would throw light on the causes of stillbirth and indicate methods for reducing the high mortality; (2) to develop a new classification of causes of stillbirth, including rules for assignment of cause. This report deals only with the first of these objectives. It is, of course, appreciated that although data obtained from hospitals are more complete than those obtained through ordinary registration, they are not necessarily representative for the country as a whole.

* Read at a Joint Session of the Child Hygiene and Public Health Nursing Sections of the American Public Health Association at the Sixty-sixth Annual Meeting in New York, N. Y., October 5, 1937.

FIGURE I

CHILDREN'S BUREAU
U. S. Department of Labor

STILLBIRTH STUDY *

[Stillbirths of 20 Weeks or More Gestation]

1. Name of hospital ..... City ..... Hospital Case No. .....

2. Mother: (a) Name .....; (b) Age .....; (c) Race ..... (Color or race); (d) Delivered at ..... (Hour) m., ... (Month) ..... (Day), 19 ..... (Year)

3. Fetus: (a) Sex .....; (b) Period of gestation ..... (weeks); (c) Length .....; (d) Weight .....;
(e) Single birth, twin, triplet, or other .....; (f) If plural birth, number in order of birth .....

4. Number of children of this mother (at time of this birth and including this child) .....
(a) Born alive and now living .....; (b) Born alive but now dead .....; (c) Stillborn .....

5. Pregnancy: (a) Was pregnancy normal? .....; (b) Specify complications** .....
(c) Was serological test for syphilis taken during this pregnancy? ..... Result ..... Date .....

6. Labor: (a) Total duration ..... (hours); (b) Was labor induced? ..... Complications of labor .....
(c) Specify method or methods of induction .....
(Include: Drugs, bag, bougie, packings, and rupture of membranes prior to onset of labor)

7. Was there an operation for delivery? ..... Name of operation .....
(Include: Low, mid, and high forceps; version and extraction; breech extraction; Cæsarean; and mutilating operations, including craniotomy)

8. Specify all drugs and anesthetics given during labor and delivery .....
(Exclude third stage of labor)

9. When did fetal death occur:
(a) Before labor ..... (b) Before operation .....
During labor ..... During operation .....

10. Was fetus macerated? .....

11. Was autopsy performed? .....

12. Causes of stillbirth (indicate primary cause):**
(a) Determined in fetus .....
(b) Diseases and conditions in mother during pregnancy and labor .....

Record prepared by ..... Date .....

* A study by the Children's Bureau with the cooperation of the Subcommittee on Stillbirths of the American Public Health Association and individual hospitals.
** See instructions on reverse side.

On the face of the schedule (Figure I) prepared for use in the study appear certain items taken from the standard certificate now in use for the registration of stillbirths and additional items to obtain medical information essential for an understanding of the cause or causes of stillbirths. On the reverse side of the schedule are set forth the scope of the study with respect to the uterogestation, the definition of stillbirth and the instructions for entering information on special items. The period of gestation (20 weeks or more) used as a basis for the inclusion of a stillbirth in the study is that recommended for nation-wide adoption by the Sub-committee on Stillbirths of the American Public Health Association. The definition of stillbirth is that incorporated in Rules of Statistical Practice of the Association, namely *:

A stillborn child is one which shows no evidence of life after complete birth (no breathing, no action of heart, no movement of voluntary muscle). Birth is considered complete when the child is altogether (head, trunks, and limbs) outside the body of the mother even if the cord is uncut and the placenta still attached.

Two hundred and twenty-nine hospitals in 49 cities in 26 states and the District of Columbia (Figure II) cooperated in the study by assigning a member of the medical staff to be responsible for filling in the items on the schedule for every stillbirth occurring in the hospital during the period of the study. The present report is based on the data obtained from 6,750 schedules received from these hospitals during the period February 1, 1936, to June 1, 1937.

From an analysis of the data on the schedules certain basic information has been obtained with respect to age and

* See Report of the Sub-committee on Stillbirths (Haven Emerson, Chairman), *A.P.H.A. Year Book 1935–1936*, p. 244.

TABLE I

Time of Fetal Death with Respect to Labor By Race

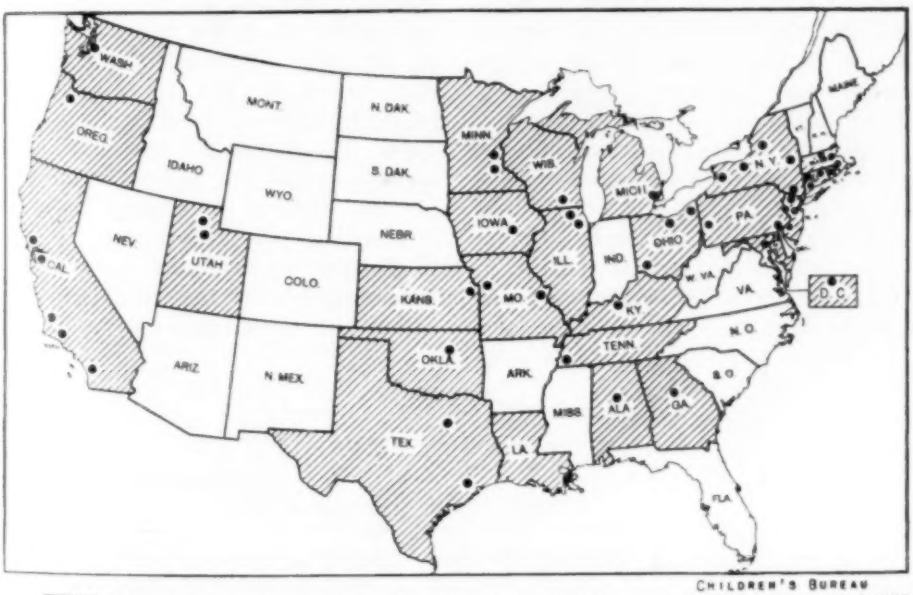
		Died Before Labor		Died During Labor	
	Total	*Number*	*Per cent*	*Number*	*Per cent*
Total	6,367	3,713	58.32	2,654	41.68
White	5,162	2,908	56.33	2,254	43.67
Negro	1,135	766	67.49	369	32.51

parity of mothers, incidence of plural births, and sex and color of the stillborn infants. As was to be expected in a study of hospital cases, it was found that the mothers were slightly older and that there was a greater proportion of primiparae and of white mothers than is shown by census reports on stillbirths. Data in regard to sex of the stillborn infants and in regard to the incidence of plural births were, however, in close agreement with census figures.

The stillbirths were studied (1) in relation to whether the fetal death occurred before the onset of labor or during labor, (2) in relation to the period of gestation at which stillbirth occurred, (3) the method of delivery, (4) the frequency of certain complications of pregnancy and labor and certain conditions in the infants. The complications of pregnancy and labor were studied in relation to whether the physician recorded the condition as the cause of the stillbirth or regarded them merely as complications. Complete analysis of these data has not yet been

FIGURE II

GEOGRAPHIC DISTRIBUTION OF STATES AND CITIES IN WHICH 229 HOSPITALS ARE COOPERATING IN THE STILLBIRTH STUDY



STATES REPRESENTED (26) AND DISTRICT OF COLUMBIA

CITIES REPRESENTED (49)

CHILDREN'S BUREAU
U.S. DEPARTMENT OF LABOR

TABLE II

Time of Fetal Death with Respect to Labor By Period of Gestation

		Died Before Labor		*Died During Labor*	
	Total	*Number*	*Per cent*	*Number*	*Per cent*
Total	6,367	3,713	58.32	2,654	41.68
Weeks of gestation					
20–27	1,084	840	77.49	244	22.51
28–35	1,756	1,298	73.92	458	26.08
36 or more	3,478	1,542	44.34	1,936	55.66
Not reported	49	33	.....	16	.....

made, but information of major importance in the attempt to understand the causes of stillbirth can be presented at this time.

The necessity of determining whether the fetus was dead before labor began or whether it occurred during labor would seem to be clear if satisfactory analysis is to be made of the effect of such factors as the method of delivery, period of gestation or the various complications of pregnancy and labor. Table I shows that more than half of the total number of fetal deaths studied (58 per cent) were reported to have occurred before the onset of labor and that the proportion of deaths occurring before labor among Negro fetuses was somewhat higher than among white.

Table II shows the time of fetal death with respect to the onset of labor in relation to the period of gestation at which stillbirth occurred. In the earlier periods of gestation (20 to 27 weeks and 28 to 35 weeks) the proportion of deaths occurring before labor began was greater than the proportion occurring during labor. In the later periods of gestation (36 weeks or more) a greater proportion of stillbirths occurred during labor. In this connection it should be pointed out that in more than one-third of all the cases in which the fetus was alive at the onset of labor, labor was prolonged more than 24 hours.

Whether the fetus was dead or still living at the time an operative delivery was performed has been determined for the stillbirths that were reported to have been associated with operative delivery. Table III shows that in the total series of stillbirths 40 per cent of the deliveries were operative and that operation was more common among white than among Negro women. Table IV shows, however, that the operation could not be held responsible for the stillbirth in a great majority of cases, actually 72 per cent, because in this proportion of the operative deliveries death of the fetus had occurred before the operation was under-

TABLE III

Type of Delivery By Race

	Total		*Operative Delivery*		*Non-operative Delivery*	
	Number	*Per cent*	*Number*	*Per cent*	*Number*	*Per cent*
Total	6,744	100.0	2,684	39.8	4,060	60.2
White	5,445	100.0	2,333	42.8	3,112	57.2
Negro	1,175	100.0	304	25.9	871	74.1

TABLE IV

Time of Fetal Death with Respect to Operative Delivery by Race

	Total		Died Before Operation		Died During Operation	
Operative Deliveries	*Number*	*Per cent*	*Number*	*Per cent*	*Number*	*Per cent*
Total	2,534	100	1,824	72	710	28
White	2,207	100	1,591	72	616	28
Negro	285	100	206	72	79	28

taken. The group of operative deliveries in which death of the fetus took place during operation, though representing 28 per cent of all operative deliveries, represents only 11 per cent of the total 6,750 stillbirths that have been studied. These facts make it clear that in the hospital cases here reported operative delivery did not play as important a rôle in causing stillbirth as it would have appeared to play if the time of fetal death had not been taken into consideration.

Although it is well known that certain complications of pregnancy and labor and certain abnormalities or other conditions in the fetus are often regarded as the cause of stillbirth, the frequency with which these same complications occur and are not regarded as cause has never been pointed out. Knowledge of the frequency of complication is basic to the determination of the rôle played by the different complications in causing stillbirth and will be of value in developing a new classification that includes rules for assignment of cause.

In this study it has been found that those conditions entered on the schedules as complications of pregnancy or labor were entered also as causes of the stillbirth in a majority of the cases. When certain conditions found in the fetus were considered responsible for the stillbirth, they were always entered as a cause.

The incidence of the conditions studied and the frequency with which each complication of pregnancy or labor was reported as a cause, is shown in Table V.

Toxemia was the commonest complication of pregnancy found to be associated with stillbirth. It occurred in 1,601 of the 6,750 cases, 24 per cent of the total group. In 1,433 of these cases (21 per cent) the physicians indicated that toxemia was a cause of the stillbirth.

TABLE V

Frequency of Certain Conditions Associated with Stillbirth

	Total		Mentioned as a Cause		Mentioned Only as a Complication	
	Number	*Per cent*	*Number*	*Per cent*	*Number*	*Per cent*
Total	6,750	100				
Toxemia	1,601	24	1,433	21	168	3
Antepartum and Intrapartum Hemorrhage	1,283	19	1,069	16	179	3
Cord Complication or Anomaly	956	14	914	13	42	1
Congenital Malformation	531	8	531	8	..	..
Syphilis	510	8	451	7	59	1
Birth Injury	354	5	354	5	..	..

Hemorrhage, ante- or intrapartum, was the second most frequent complication, occurring in 1,283 of the 6,750 cases (19 per cent of the total). It was indicated as a cause in 1,069 cases (16 per cent).

Cord complications or anomalies (such as compression, prolapse, thrombosis, and so forth) were third in frequency, occurring in 956 of the 6,750 cases (14 per cent of the total). They were indicated as a cause in 914 cases (13 per cent).

Syphilis was recorded as a complication in only 510 of the 6,750 cases (8 per cent of the total) and as a cause in 451 cases. Since serological tests of the blood were made in only two-thirds of the cases, the exact rôle played by syphilis is not known. Ten per cent of the tests made were positive, 4 per cent among white and 28 per cent among Negro women.

Congenital malformation was recorded as a cause in 531 of the 6,750 cases (8 per cent of the total). It is of considerable interest that in four-fifths of the cases the malformation involved the central nervous system.

Birth injury was recorded as a cause in only 354 cases (5 per cent of the total), a figure that does not include congenitally malformed fetuses injured during birth nor those dead before the onset of labor which were reported to have been injured during birth. The fact that postmortem examination was made on only one-third of the total number of stillbirths studied probably accounts in part for the relatively small number of cases in which birth injury was recorded as a cause of stillbirth.

In order to evaluate properly the rôle played by these conditions and complications as causes of stillbirth it is important to consider them in relation to the time when the fetal death occurred with respect to the onset of labor and to the period of gestation at which stillbirth occurred. Obviously the death of the fetus before labor begins or death of the fetus in the previable period must influence our interpretation of complications as causes.

Table VI shows that the fetus died before labor began in more than half of the cases in which toxemia, hemorrhage, and syphilis were complications of pregnancy and in which congenital malformations were found in the fetus (65, 58, 82, and 60 per cent respectively). On the other hand, in those cases in which cord complications and birth injury was reported fetal death occurred during labor in 61 and 100 per cent of the cases respectively.

Table VII shows for each condition the period of gestation at the time of delivery. The periods of gestation used are the period 20 to 27 weeks, which includes previable infants; the period 28 to 35 weeks, which includes infants

TABLE VI

Time of Fetal Death with Respect to Labor By Condition Associated with Stillbirth

		Died Before Labor		*Died During Labor*	
	Total	*Number*	*Per cent*	*Number*	*Per cent*
Toxemia	1,524	997	65	527	35
Antepartum and Intrapartum Hemorrhage	1,147	666	58	481	42
Cord Complication or Anomaly	933	364	39	569	61
Congenital Malformation	503	302	60	201	40
Syphilis	494	405	82	89	18
Birth Injury	357	...	..	357	100

TABLE VII

Period of Gestation By Condition Associated with Stillbirth

		20–27 Weeks		*28–35 Weeks*		*36 Weeks or Over*	
	Total	*Number*	*Per cent*	*Number*	*Per cent*	*Number*	*Per cent*
Toxemia	1,587	207	13	618	39	762	48
Antepartum and Intrapartum Hemorrhage	1,278	330	26	484	38	464	36
Cord Complication or Anomaly	955	73	8	166	17	716	75
Congenital Malformation	528	53	10	186	35	289	55
Syphilis	506	110	22	204	40	192	38
Birth Injury	376	11	3	29	8	336	89

viable but premature; and the period 36 weeks and more, which includes term and overterm infants. Twenty-six per cent of the stillbirths associated with hemorrhage, 22 per cent with syphilis, and 13 per cent with toxemia occur during the previable period. Nearly two-thirds of the stillbirths associated with syphilis and with hemorrhage, and more than half of those associated with toxemia occurred prior to term. On the other hand, most of the cord complications (75 per cent), congenital malformation (55 per cent), and birth injuries (89 per cent) were found when the fetus was full term.

Perhaps the most important point to consider in this study, aside from the preparation of a new classification of cause of stillbirth, is how many of these 6,750 stillbirths were preventable. Stillbirths caused by syphilis are, of course, the most easily prevented. Serological tests of the blood for syphilis were made in only two-thirds of the cases studied (68 per cent) and in more than a third (36 per cent) of the cases in which a test was made it was not made until the day of delivery or later. More than one-half of the total number of women were, therefore, either not tested or were tested too late to have been treated if they were syphilitic. If all the women who were known to be syphilitic and who gave birth to syphilitic fetuses had been adequately treated for syphilis throughout pregnancy, 451 stillbirths or a large proportion of them could have been prevented.

Adequate prenatal care might have prevented or reduced the severity of a considerable proportion of the 1,433 cases of toxemia. It is well known that the number of stillbirths occurring in hospitals is increased by the admission of women acutely ill with toxemia and eclampsia who have had no prenatal care or who have had inadequate care. In nearly 200 cases, or 12 per cent of all toxemias, the diagnosis was eclampsia. That this condition can be controlled in a great majority of cases by giving adequate prenatal care is well recognized and many other cases of toxemia also are amenable to treatment. To expect a reduction in the number of stillbirths from this cause seems reasonable.

The prevention of stillbirths due to ante- and intrapartum hemorrhage is more difficult because knowledge of the causes of the underlying conditions is incomplete. However, in a certain proportion of these cases immediate hospitalization and proper treatment would probably be effective, since a large proportion of the cases were recorded as due to premature separation of the placenta, and only somewhat less than one-quarter were cases of placenta previa, a condition obviously not pre-

ventable and admittedly one in which death of the fetus is likely to occur.

Reduction in the number of birth injuries involves many factors in the care of the mother both in the prenatal period and at delivery, but it seems reasonable to expect that some reduction of stillbirths due to this cause is possible.

CONCLUSIONS

The seriousness of the stillbirth problem should be more generally appreciated by practitioners of medicine as well as workers in the field of public health.

Laws relating to the reporting of stillbirths should be made uniform for all states.

A revised standard certificate should be adopted in all states to give information in regard to certain conditions that have been found to be important in determining the causes of stillbirth.

An acceptable classification of causes of stillbirth, both fetal and maternal, should be prepared, which will include rules for assignment of cause.

All physicians should contribute to knowledge of causes of stillbirth by giving accurate and complete information when filling out certificates of stillbirth. Careful postmortem examination of stillborn infants will give additional information.

Physicians must apply more generally the knowledge already available to prevent a considerable proportion of stillbirths. Increased efforts must be made to determine the underlying cause of such conditions as toxemia and antepartum hemorrhage which, as has been pointed out, are the complications of pregnancy most commonly associated with stillbirth.

When these conditions are fulfilled it should be possible to clarify to a considerable extent many of the problems of the cause of stillbirth and to make further reductions in fetal mortality.

Extent and Seasonal Variations of Intermittency in Growth*

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THIS study was undertaken because of the differences in methods and confusion of results in determining intermittency in growth.

A simple screen for selecting school children who need health improvement and hence special attention would be an obvious aid in school health administration. At present we have no such generally used screening process. The height-weight-age tables, influenced largely by skeletal build, selected so many well children that their use has been abandoned. The more elaborate indices based upon several body measurements are more reliable in selecting children with too little soft tissue, but they are too cumbersome for practical school use. Poor growth is easily determined, and it is a recognized fact that growth among healthy children is a reasonably continuous process.[1, 9, 10] On the other hand, we know that disease, poor nutrition, and lack of rest interfere with growth. Studies of children with good and with poor growth have shown that those who have stopped growing for appreciable periods of time reflect poorer habits, more illnesses, and a greater number of physical defects than those who grow well.[2] On this basis special attention for children who are growing poorly is commonly recommended.[1]

In this study we have sought the most practical screening procedure using intermittency as a basis. We have examined the influence of seasonal variation in growth upon intermittency, and we have looked into the relationship between intermittency in growth and poor growth for the school year.

Intermittency in growth is a promising screen, but its use must be standardized if comparable and satisfactory results are to be secured.

The data used were obtained from the public schools of Malden, Mass. Only those children who had been weighed every month during the school year were studied. The children were weighed the same week in every month. Shoes and sweaters were removed and the weights recorded to the nearest quarter pound. Table I shows the distribution of children used throughout the study according to sex and age taken at the last birthday.

SELECTING AN INTERMITTENCY STANDARD

Intermittency might be measured over any given period during the school year and recorded several different

* Read at Joint Session of the National Society for the Prevention of Blindness and the Child Hygiene and Public Health Nursing Sections of the American Public Health Association at the Sixty-sixth Annual Meeting in New York, N. Y., October 8, 1937.

TABLE I

Distribution of Children According to Sex and Age

Ages →	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*Total*
Boys	56	210	177	244	278	315	261	71	1,612
Girls	58	198	209	304	260	290	230	68	1,617
Combined	114	408	386	548	538	605	491	139	3,229

ways. This study is limited to 1, 2, 3, and 4 month periods recorded by the following three methods: The first method determines intermittency by weights at the beginning and end of the period only. Table II and Graph A indicate the percentage of children showing intermittency by the first, second, and third methods for the 4 different periods for both sexes and all age groups. It is immediately obvious that intermittency even on a 4 month basis, as determined by the first method, selects too many children (43 per cent or more) to make this a useful screen or index. Two-thirds of the children in school show intermittency of this type over a 3 month period.

The second method of computing intermittency uses weights taken at monthly intervals. If there is no gain or a loss at the end of a period and no gain above the original weight during the intervening months, an intermittency period is recorded. Here again we select too many children (more than 20 per cent) even with the 4 month period.

In our objective for securing special attention for the children most needing it, we realize that it is administratively difficult to give such special attention to much more than 10 per cent of the school population. After thoughtful consideration of this problem the A.C.H. nutritional index was set to select approximately 8 per cent of the school population.[3]

The third method of computing intermittency also uses weights taken at monthly intervals, but intermittency is recorded by this method only when there is no gain or a loss at *each* monthly weighing. The 3 month in-

TABLE II

Percentage of Children Showing Intermittency for Each Age Group by 3 Different Methods for 4 Different Periods

Ages →	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*
				First Method				
1 month period	95.0	99.0	99.0	98.5	97.5	98.0	98.5	100.0
2 " "	88.5	90.5	86.5	88.5	89.0	84.0	76.5	90.0
3 " "	71.5	66.5	63.5	67.5	66.0	63.0	54.5	61.0
4 " "	48.5	47.0	41.5	44.0	44.0	43.5	35.5	39.0
				Second Method				
1 " "	95.0	99.0	99.0	98.5	97.5	98.0	98.5	100.0
2 " "	83.5	80.0	78.0	68.0	72.0	73.5	64.0	74.5
3 " "	45.0	49.5	42.5	39.5	45.5	41.5	34.5	36.5
4 " "	24.5	26.0	20.5	21.5	24.0	21.0	16.5	13.0
				Third Method				
1 " "	95.0	99.0	99.0	98.5	97.5	98.0	98.5	100.0
2 " "	62.5	60.5	56.5	50.0	48.5	51.5	40.5	50.5
3 " "	13.0	16.0	16.0	14.5	13.0	15.5	10.5	11.0
4 " "	2.5	3.0	4.0	2.5	2.5	4.0	2.5	1.5

TABLE III

Seasonal Variation in Intermittency

Percentage of Pupils Failing to Gain for Three Successive Months at Different Intervals through the School Year

	Interval →	*S.–D.*	*O.–J.*	*N.–F.*	*D.–M.*	*J.–A.*	*F.–M.*	*M.–J.*
Boys:	(1,612 cases)	0.25	0.80	1.50	1.80	2.20	3.50	7.20
Girls:	(1,617 cases)	0.60	1.50	1.90	1.80	3.00	3.70	4.90
Combined:	(3,229 cases)	0.42	1.15	1.70	1.80	2.60	3.60	6.05

termittency period selecting as it does 10 to 15 per cent of the school population would seem to be the most practical screen in sifting out that percentage of pupils which can, from the point of view of administration, properly be given additional attention. The 2 month periods select too many children (53 per cent) and the 4 month periods too few (3 per cent).

It is clear that only those schools which weigh children every month have available a satisfactory intermittency index. Health educators generally agree that, from the educational point of view, weighing every month is essential if the child's interest in growth is to be maintained. Schools that weigh at quarterly intervals cannot make use of this educational experience or of the intermittency screen.

DOES SEASONAL VARIATION IN GROWTH EFFECT INTERMITTENCY?

It is well known that the first few months of the school year is a period of excellent weight gains and the last few months of the school year a period of relatively poor gains in weight.[4, 5, 6, 7] We would expect more cases of intermittency to appear during the latter part of the school year, and this is actually the case as shown by Table III. The amount of intermittency increases continually from the beginning to the end of the year. We know that clothing changes represent one factor,[4] but there are in addition real seasonal changes.[5] Earlier studies also indicate that the seasonal changes in the rate of growth are due in considerable measure to changes in the habits of living (especially diet and activity), and that children with a more satisfactory and uniform program of living have generally shown less seasonal fluctuations than other groups. In the early spring months we have also the effect of reduced sunlight and the prevalence of spring colds.

This index picks up the children who have the poorest growth. Inevitably we must pick up more children in the spring when the group as a whole is gaining slowly than in the fall when

TABLE IV

Comparison of the Per cent of Overlapping of Children Screened by Poor Growth for the School Year and by the Third Intermittency Method, 3 Month Periods, Omitting June Weights

Sex →	*Boys*	*Girls*	*Combined*
Per cent of Intermittency Pupils Screened by the Poor Growth Method	16.0	25.0	20.5
Per cent of Poor Growth Pupils Screened by the Intermittency Method	23.0	28.6	25.8

they are gaining well. In selecting the definition of intermittency to be used, a question arises as to whether some part of the year should be omitted in the use of intermittency, or whether different standards of intermittency should be used for different seasons of the year. It is believed that intermittency should not be determined in June for the following reasons:

1. The closing of the school year commonly makes the weighing date earlier so that the May–June period is likely to be less than a full month. (This was the case in many of the classrooms from which our data were collected.)
2. Since it is near the end of the school year, special attention for poorly growing children is not possible over any continued period.
3. This is a time of year when the seasonal effect upon gain in weight is most keenly felt and has assumed increasing importance as a cause of poor growth.

The greatest difficulty or weakness of any growth index is seasonal fluctuation. However, it is not deemed wise to use other standards for earlier months of the school year because, as is shown by Chart A, the next lower standard, a 2 month intermittency, would give us disportionately high percentages of children.

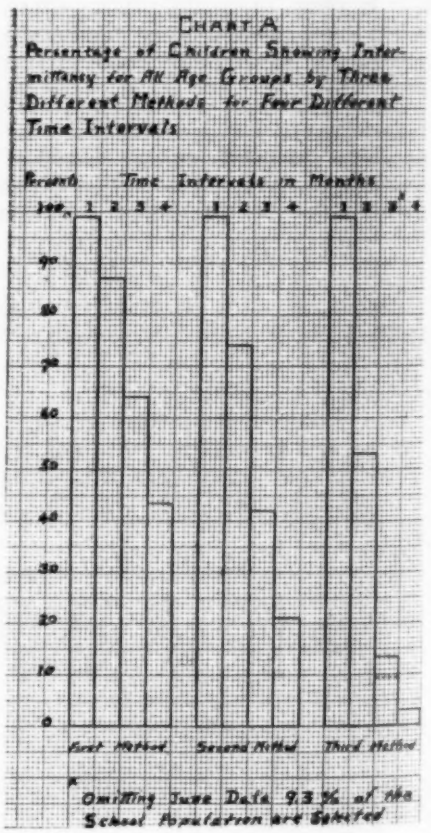
We do not yet have enough data to know whether cities or schools with good health programs have less intermittency than others. Groups of a few hundred children studied from other cities show a somewhat higher percentage of cases screened than at Malden.

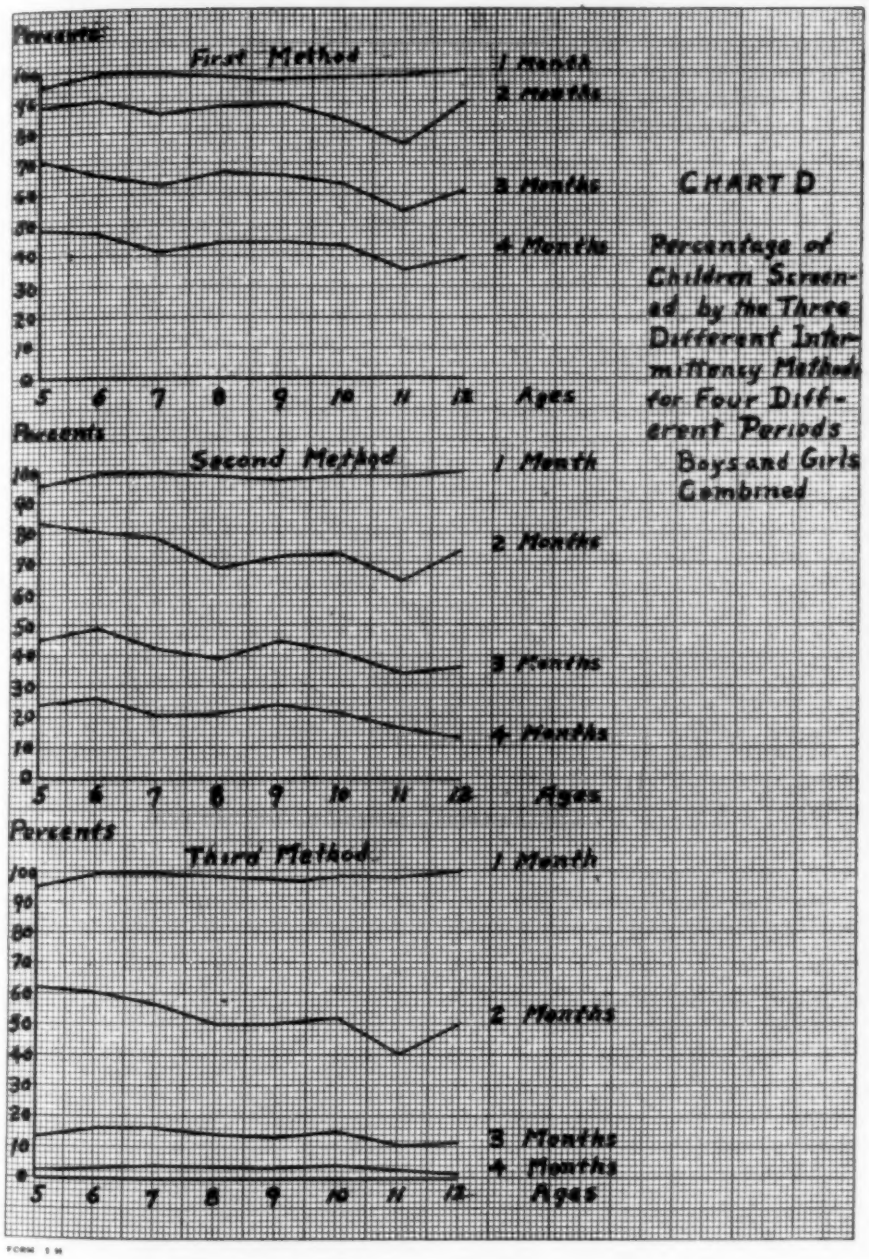
The data here presented touching upon seasonal growth apply only to climates comparable to that of New England. It seems unlikely that it would apply to southern states.

RELATIONSHIPS BETWEEN INTERMITTENCY AND POOR ANNUAL GROWTH

Many school systems give attention to children who have shown poor annual growth. Because of this practice it seemed practical to explore the relationship between poor growth and intermittency. Poor growth during the school year was determined for the lower decentile of a gain distribution for each age group. Table IV shows the percentage of overlapping between poor growth for the school year and intermittency by the 3 month period, third method, with June weights omitted. This clearly shows that poor growth for the school year and intermittency are far from identical. The amount of overlapping approximates 25 per cent. There are apparently many slowly growing children who do not stop growing for 3 months.

The question arises: Does either intermittency or poor growth for the school year select children on a size basis rather than on a health basis?





We can determine this by comparing the weights of the children selected with the weights of the whole school population. From Table V it can be seen that the poor growth method, like the height-weight-age tables has a tendency to select children who are naturally small for their age: the intermittency method does not. Intermittency would thus seem to be a definitely better health screen since it is not influenced by the size of the child.

It must be recognized that inter-

TABLE V

Comparison of Average Weights of the Children Screened with the Average Weights of the Whole School Population

Items	*Pounds Less or Greater than the Ave. Wt. of All Pupils*	
Sex →	*Boys*	*Girls*
Pupils Screened by the Proposed Intermittency Method	+.272	—.500
The 10% of the Pupils Having the Smallest Gain for the School Year	—2.32	—2.25

mittency is not a diagnosis of a specific condition. It selects children who in general have greater need of special attention for one cause or another than the children who are growing well. We are not yet in a position to say that 3 month intermittency cannot occur in a child with relatively good health. We are in a position to say that the use of such a screen is simple and that it secures attention for many children who need it and profit significantly by it.

SUMMARY AND CONCLUSIONS

The most practical public school procedure for screening children who grow poorly during the school year is as follows: Weigh children every month of the school year except June and record intermittency where there is no gain or a loss for each month of 3 successive months.

The number of children screened per school year will approximate 10 per cent while the number of intermittency cases will be in the neighborhood of 12 per cent. In other words, one might expect 2 per cent of the children to be picked up more than once.

Seasonal variation in growth is a factor contributing to a small amount of intermittency in the fall and a gradually rising amount as the school year progresses. It does not seem wise, however, to use a different standard of intermittency at different seasons.

The evidence presented indicates that poor growth for the school year cannot be substituted for the recommended procedure of measuring intermittency. The identity of the two are not the same, and furthermore the former has the tendency to select children of small skeletal build.

School experience and other studies[2] indicate that it is worth while for the teacher, the nurse, and school doctor to investigate the cases of children who have stopped growing for long periods—investigating (1) poor habits or recent illness, because of which they may need a modified program, (2) serious physical defects which need correction.

This study shows clearly that if intermittency in growth is to be used as a screen, we need a standard definition. The definition here proposed seems the most practical.

Monthly weighings are necessary to use intermittency as a screen as they are also desirable to get the best educational value from using growth as an incentive toward healthful behavior.

REFERENCES

1. Rogers, J. F. *What Every Teacher Should Know About the Physical Condition of Her Pupils.* Pamphlet 68, Office of Education, Government Printing Office, Washington, D. C., 1936.

2. Turner, C. E., Lytle, Ellen, and Winnemore, Charlotte. Intermittency in Growth as an Index of Health Status. *A.J.P.H.*, XXII, 5 (May), 1932.

3. Franzen, Raymond, and Palmer, George T. The A.C.H. Index of Nutritional Status. *Child Health Bull.*, X, 1 (Jan.), 1934. American Child Health Association, New York.

4. Turner, C. E. Seasonal Fluctuation in Growth with Special Reference to the Clothing Factor. *Res. Quart.*, A.P.E.A. Vol. IV, No. 1 (Mar.), 1933.

5. Porter, W. T. Seasonal Variation in the Growth of Boston School Children. *Am. J. Physiol.*, 52:21, 1920.

6. Baldwin, B. T. *Studies in Child Welfare.* University of Iowa, 1, 1:203, 1921.

7. Gebhart, J. C. *Defective Nutrition and Physical Retardation.* Pedagogical Seminary, 28, 2 (June), 1921.

8. *Rev. Ed. Res.*, American Educational Research

Assoc. Dept. of the National Education Assoc., 1201 16th St., N.W., Washington. Apr., 1933 and 1936.

9. Shuttleworth, F. F. Standards of Development in Terms of Increments. *Child Development*, 5:89 (Mar.), 1934.

10. Significance of Weight as an Index of Health. *Ed. Bull.*, Dept. of Public Instruction of New Jersey, June, 1930. (See also: *Elementary School J.*, Dept., 1930.)

11. Lucas, W. P., and Pryor, H. B. Physical Measurements and Physiological Processes in Young Children. *J.A.M.A.*, 97:1127–33, 1931.

12. Franzen, Raymond. *Physical Measures of Growth and Nutrition*. Am. Child Health Assoc., 1929.

On Being a Good Egg

THERE'S nothing new in the idea that to get along well in life one must be a "pretty good egg." But the idea that one must start from "a pretty good egg" to get well along in life—that, in the popular vernacular, is something else.

Such a start, according to Professor Raymond Pearl, noted biologist of Johns Hopkins University, is one of the most important factors in the achievement of great longevity. In a lecture on the search for longevity, the fifth of a series delivered to the laity of the New York Academy of Medicine, he said that the rôle of heredity in a long life span has been demonstrated. Reporting his remarks in its issue of February 25, the *New York Times* states that data have been compiled from life tables for parents of very long-lived persons compared to life tables for parents of very short-lived persons; from life tables of children of short-lived parents, mediocre parents in respect of longevity, and long-lived parents; and from the ancestries of nonagenarians and centenarians compared with ordinary folk of mediocre longevity. They show that nonagenarians and centenarians have a much higher proportion of long-lived immediate ancestors than does run-of-mine humanity.

It has been shown also that in the case of persons destined to die of the cardiovascular diseases, the so-called diseases of civilized man, it is possible to demonstrate on the basis of certain medical, genetic and other examinations made when the persons are in a state of health, that groups that will be short-lived and groups that will be long-lived can be distinguished and differentiated years prior to the onset of the diseases that eventually will kill them.

Professor Pearl also presented "the first life tables ever constructed" on the relation between tobacco and longevity. They show that smoking is associated with definite impairment of longevity. As for alcohol, while no measurable effect of the moderate use of alcoholic beverages on longevity can be demonstrated, heavy indulgence definitely and considerably impairs life expectation.

Hard physical labor, whether performed in or out of doors, has no effect upon life expectation up to about the age of forty. After that age, however, such labor definitely and considerably impairs longevity.—*Health News*, N. Y. State Dept. of Health, Mar. 7, 1938.

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THE NEED FOR A NATIONAL HEALTH PROGRAM

Report of the Technical Committee on Medical Care

AN annual bill of ten thousand million dollars commands attention even in these days when government thinks in billions. The Technical Committee on Medical Care of the President's Interdepartmental Committee to Coördinate Health and Welfare Activities believes that this bill can be cut in two by supplementing existing medical resources and effecting their more even distribution.

In a report just made public the Technical Committee presents clearly and concisely the facts brought out by recent studies of the nation's health, the means available for its protection and the services at hand for the care of the sick. Due tribute is rendered to scientific advances in medicine and in public health procedure. At the same time the committee stresses the lag in practical employment of the new knowledge to provide equal health service to the whole people. For this two causes are given, lack of adequate funds and the need of well trained personnel. A primary objective of the committee's report is to show what can be done, in the light of what is now being done. It reviews the achievements of the past in the various fields of preventive medicine, applauds the results attained in some, but lays emphasis on unmet needs in the two broad classes—maternity, infancy, and childhood on the one hand, and on the other specific causes of sickness, disablement, and death not associated with the risks of early life.

Among approximately 2,000,000 annual births, 75,000 infants are stillborn and 69,000 die in the first month of life, while 17,000 mothers die each year from causes directly connected with childbirth or from intercurrent diseases aggravated by pregnancy. Lack of adequate medical attention is evident in many of these tragedies. In one year a quarter of a million women had no doctor at time of delivery; only 2 of 49 state health officers reported facilities for maternal care in their states as adequate; in urban areas 71 per cent of births occurred in hospitals, and in rural areas 14 per cent; prenatal and child health centers were adequate in but few localities, totally lacking in many; especially

in rural districts nursing service was woefully inadequate. These are samples of unmet maternity needs.

Certain specific inadequacies are similarly listed in provision for preventive and corrective care of children. The use of protective measures against communicable diseases falls far below its possibilities. Less than half the preschool children were immunized against diphtheria in two-thirds of 77 cities and counties recently surveyed. The report criticises severely the ineffectiveness of the health care currently provided for children in the elementary schools. Even less satisfactory is the dental care of our youthful population during its growing years.

Health hazards of later years are also reviewed at length in the report of the committee. Tuberculosis, venereal disease, pneumonia, malaria, chronic diseases of middle and old age, mental afflictions, and industrial risks are discussed and flagrant omissions in existing programs for their prevention and care are indicated.

Following this succinct and well supported statement of the shortcomings of medical care in the United States the report turns to a consideration of causes. Low income groups show notable lack of adequate medical service and at the same time greater percentage of need due to higher morbidity rates. The National Health Survey has shown that families with incomes less than $1,200 average 8.9 annual days of disability per person, while families with incomes above $3,000 show only 3.8 days of such illness. Furthermore, 40 per cent of the families investigated were in this low income group. One in every 20 heads of family in the relief group was found unable to work because of chronic disability as contrasted with 1 in 250 heads of family where income was $3,000 or more. Children in relief families lost 30 per cent more time from school than those in moderate and comfortable circumstances.

The need for medical care, therefore, is plainly greater in relief and low income groups. Actual distribution of medical care to these groups, however, is less than to those who can afford to pay. The myth that the very poor and the rich get about equally good medical care is exploded. This is true only in rare cases where exceptional hospital provision is available for the poor. A carefully prepared table shows that the well-to-do get about 2½ times as much medical care as the poor although the latter's need because of serious illness is 2¼ times as great. Further evidence of lack of needed care is furnished by the fact that 47 per cent of the members of families in the $1,200 or less income group receive no medical, dental, or eye care during a year in contrast to 24 per cent in the $5,000 group and 14 per cent in the $10,000 income families. There is no escape from the conclusion that individuals in the low income group, while needing definitely more medical care, actually receive substantially less than those in families comfortably off or wealthy.

Attempts at budgeting for illness by low income families have been frustrated by the unpredictable demands. A family may be stricken in a single year with a staggering load of sickness which its resources are wholly unable to bear. The committee is unanimous in the belief that measures to lighten these unpredictable medical costs are needed by families with low incomes even though such families are ordinarily self-sustaining in other essentials of living. It is also convinced that considerably larger financial support is needed for the medical care of those submerged families without income or with incomes insufficient to provide the economic necessities of life.

Remedies for present inadequacies in medical care of the entire population

are laid down in principle without prescribing a specific plan. Obviously provision must be made for adequate professional personnel. At present there would appear to be approximately enough physicians and private duty nurses to care for the country's need. Some 3 times as many public health nurses as are now available are indicated while the number of dentists could well be doubled without reaching the saturation point.

Hospitals are inadequate both as to number and equipment. It is estimated that 400,000 beds should be added to the 1,100,000 now available.

The critical aspect of the problem, however, lies in the matter of an even distribution of services considering the country as a whole. Physicians show an urban concentration. Rural areas are more in need of dentists and private duty nurses than are cities. But the rural lack of public health nursing reaches a point of scandal in certain localities. In addition to the personal preferences of professional men and women there is a vast economic problem to be met if equal opportunities for medical care are to be supplied all parts of this country. Some plan of subsidy through local taxes, insurance, government grants-in-aid, or a combination of all three, appears clearly indicated.

The committee recognizes that we have at our command tried and tested methods which if put fully to use could accomplish vastly more in the prevention of suffering and the conservation of health. Progress is discouragingly slow under present methods and policies. Better organization of existing resources and further additions to supply evident deficiencies are recommended. "The committee finds there is need and occasion now for the development of a national health program."

The Technical Committee on Medical Care has presented a masterly condensation of the vast store of information on the subject resulting from recent surveys. This has been brought into reasonable and readable form. Conclusions are implied rather than stressed. It leaves no doubt in the mind that the status quo is unsatisfactory. It proposes no revolutionary policy. On the other hand its method is to appraise fairly the merits of procedures now in operation, and at the same time to point out their inadequacies. It advocates essentially the balancing of resources now available by supplying deficiencies where the need is apparent in the various aspects of medical care. It sets forth the highly reasonable doctrine that coördination of these resources is an essential element in their successful employment.

"IT CAN'T BE DONE UNDER OUR LAW"

THE procedure of health administration is to a considerable extent dictated by the law. The legal prescriptions are desirable to the extent that they are necessary for the sake of insuring coöperation of the citizen on one hand, and of protecting him against bureaucratic oppression on the other. But many procedures have been incorporated into the public health law which should have been left to the common sense of the health administrator, or to a small body of qualified persons included in a board of health or an advisory council.

Many of these laws which were thoroughly consistent with the public knowledge of their day, have subsequently become antiquated in that they place unnecessary burdens upon the public, or dictate unnecessary procedures for the health administrator. Some officials, who would like to modernize these laws, hesitate to go before the legislature because, in the endeavor to secure repeal of

obsolete provisions, they run the risk of subjecting the essential provisions to tampering, as has happened in more than one instance.

Among the more antiquated laws are those relating to vital statistics. The model vital statistics law which was drawn up about 1908 performed a very useful function, but it has now become obsolete in a number of respects; and in most of the states, the vital statistics codes today operate as a serious barrier to progress. Any proposal to improve the vital statistics procedure is exceedingly likely to evoke from a number of registrars a statement to the effect that: "Our state could not coöperate in this movement; it is contrary to our state law." And with many, the matter ends there. This mental attitude is unfortunate, and is frequently unjustifiable.

It is, of course, frequently true that in some states the legislative barriers may be insuperable in a practical sense. The attitude of registrars toward their laws, however, is often unnecessarily fatalistic, and the primary purpose of this editorial is to emphasize that the law is not always as rigid as the registrar imagines, and that it should never be assumed that a desirable step cannot be undertaken until the law has been examined in a constructive attitude. This attitude is reflected by the question "Under what provisions of the law might the proposed procedure possibly be *permitted*?" as opposed to the question "What does the law *forbid*?"

If the law be approached in this attitude, it is really remarkable how much can be done, even with an antiquated law. As an example let us take the proposal recently approved by the Association of State Registration Executives that burial permits issued in one state be accepted by cemetery authorities in other states (whence the permit would be relayed for the record and information of the local registrar). Under many of the vital statistics laws, this procedure might be contested on the ground that the state law provides that no body shall be buried within the state unless a proper death certificate has been deposited, and a burial permit obtained. Under a narrow interpretation of the law, the acceptance of foreign burial permits might be barred; but under a liberal one it probably would not. Moreover, there is frequently a provision that the state board of health shall have authority to regulate the transportation of bodies, and under this provision a favorable regulation might be made by the State Board of Health.

Again, in one state the law forbids the issuance of information from birth or death records by the county health officer to persons not authorized. But it was found possible to give out simple age statements on the ground that these did not give out new information, but merely confirmed the statement given by the applicant in his request.

If appeal is made to an attorney-general in such matters, the outcome will depend to a very considerable extent upon the manner in which the question is phrased. A bald request for a decision as to the legality of the proposed move may very readily result in a negative ruling. If, on the other hand, it is pointed out that the proposed move would be for the general welfare, that there is general support and no visible opposition, and if the references to the law include the favorable sections, the Attorney-General will usually be found willing, in his ruling, to give the benefit of any doubt to the progressive cause. This is entirely ethical and proper. No group of legislators can possibly frame a law which foresees all contingencies and social changes, and it is certainly unsound for any public servant to interpret doubtful points in the law to the detriment of the public, whose welfare the law is intended to serve.

A revision of the vital statistics laws of our states is certainly in order. The president of the American Association of State Registration Executives has initiated steps toward reorganizing the model law, but reform will probably be a slow process. In the meantime, before it is concluded that "It can't be done under our law," an effort should be made to see whether the impossibility claimed is as real as it seems.

THE SO-CALLED HUMANE POUND LAW IN CALIFORNIA

THERE is no such thing as a local antivivisection fight, though such movements are staged locally in the various legislatures of the country. One fight is going on now in Washington, D. C., which legally affects only the District of Columbia. What seems to be a more important movement is going on in California in what is called the Humane Pound Law. In 1922, the antivivisectionists carried on a big fight, since which time they have been fairly quiet. The recent movement, beginning in 1937, has been carried out under the initiative which the California law provides. A petition has been circulated which has received the necessary number of signatures, and the matter will go before the voters on the 1938 ballot. While the law provides that dogs and cats shall not be delivered to medical schools from public pounds, it is perfectly plain that this would greatly cripple the use of animals in experimental medicine. The election will not take place until November 8, 1938, but it is not too soon for those interested in scientific medicine to take steps to frustrate the ends of these misled people.

Fortunately, in 1915, the California Society for the Promotion of Medical Research was organized and was the leader in the successful campaign against the "antis" in 1922. It has again entered the field and will doubtless do effective work. We cannot do better than to quote here a resolution adopted by the Western Society of Naturalists:

> *Resolution adopted, at the request of the California Society for the Promotion of Medical Research, by:*
>
> "The Western Society of Naturalists, meeting in Berkeley, California, December 28, 29 and 30, 1937, records its emphatic opposition to any measure such as the proposed 'State Humane Pound Law' which will hinder or curtail animal experimentation as conducted by those fully qualified in biology and medicine. It is the belief of this Society that the present level of health and humane protection of man and animals and further advance in our knowledge of the phenomena of life can be maintained only by constant vigilance and by continued study of the nature of vital processes through the experimental investigation of living animals. Every effort should be made to provide the necessary animals for scientific studies rather than to interfere by the passage of hampering legislation."

While the American Public Health Association as such has not taken any steps in this matter, there is no question that we can assure the California people we are with them heart and soul, and will support them to the best of our ability.

"NINETEEN THIRTY-SEVEN A STAR HEALTH YEAR"

TWO heartening reports have already been made this year.[1, 2] The first is from a selected group of 17,700,000 industrial policy holders for the year 1937. The second covers reports from 39 states of the Union and Hawaii for the first 9 months of 1937. One would expect the selected group of policy

holders to make a better showing than the general population. However, the two reports run very closely parallel and agree essentially. Nineteen thirty-seven was a "year of best records." For the selected group the mortality rate for all causes of death combined was 8.221 per 1,000, or 2.1 per cent better than the figure for 1936. For the entire population the mortality from all causes was 11.1 per 1,000, or 6 per cent lower than that for the same months in 1936. For the insured, 8 causes of death—typhoid fever, scarlet fever, tuberculosis, chronic nephritis, diseases of pregnancy and childbirth, homicides, accidental burns, and railroad accidents showed the lowest mortality rate for all time in the insured group, and the combined rates for all forms of accidental death was lower than ever before. In the general population, whooping cough, poliomyelitis, influenza, cancer, and diabetes showed an increase over 1936. All other causes of death gave rates which were not above those of 1936, and mostly lower. All of the important causes of death except heart disease, pneumonia, and cerebral hemorrhage gave the lowest rate reported for 4 years past.

Particularly striking is the death rate from tuberculosis. The decline which has been noticeable for a number of years, though checked in 1936, has continued during the first 9 months of 1937, being for that period, 50.7 per 100,000, or 2 per cent less than for last year. In the insured group, the mortality from tuberculosis dropped 5.5 per cent. Both among the insured and in the general population the drop in the death rate from tuberculosis is considered as "probably the greatest single achievement in the entire history of the public health movement."

While in the daily press we see frequent warnings that the liquor interests are running wild and encouraging the use of liquor to such an extent that a general movement for the reënactment of prohibition is likely to occur, the Metropolitan Life Insurance Company reports that the death rate from alcohol among its policy holders is at its lowest point since 1921; only 323 deaths among 17,700,000 persons. Of course this is a selected group to begin with, and is under some control. Nevertheless the report is heartening.

Among the general population there has been a continued decline in deaths associated with pregnancy and childbirth, a decline which has been going on for 9 consecutive years. Among the insured there has also been a continued drop in the death rate among children, adolescents, young adults, and even among those of all ages up to 65. For 1937, the death rate was less than one-fourth of that prevailing in 1911, when the Metropolitan Company began its Health and Welfare Program.

In spite of these favorable reports which are most encouraging and prove the value of general health work, there is no disposition to become careless and contented. Indeed campaigns against some of our most important diseases such as influenza, pneumonia, and syphilis are going on with a vigor never before manifested, and there is evidence of the most gratifying response on the part of the public.

REFERENCES

1. *Stat. Bull.*, Metropolitan Life Insurance Co., Jan., 1938.
2. *Pub. Health Rep.*, Feb. 4, 1938.

PUBLIC HEALTH EDUCATION*

An Award for You: An Idea for Others—Again, as in years past, awards will be made for distinctive presentation or interpretation of health and welfare topics. Each year a group of health agencies has won the attention of the judges for attractiveness and effectiveness.

For 1938 the awards will be given for examples of writing: newspaper news releases or feature articles; booklets; letters appealing for funds, answering questions, or replying to criticisms or complaints; reports; articles in official organs of state or local groups, such as clubs, unions, churches, etc.; or other forms of writing to be read, not for broadcasts, plays, etc.

Examples should arrive by April 15, 1938, addressed to Awards Committee, Social Work Publicity Council, 130 E. 22d St., New York, N. Y.

Will the state department and the state association check quickly the sources of good health writing in their states, and try to get samples sent to New York? Likewise we hope that our readers will use the telephone to dig up good examples of the home writing product.

The Office of Public Health Education—Not in years has any single development meant so much to public health education as the inauguration of the Office of Public Health Education in the U. S. Public Health Service. Hence we quote quite fully from *The Health Officer* for Jan., 1938:

Assistant Surgeon General Robert Olesen announced on December 6 that Philip S. Broughton, Informational Assistant of the Venereal Disease Division, had been assigned by Surgeon General Parran to take charge of the Office of Public Health Education. Mr. Broughton replaces Dr. R. R. Spencer, now Executive Assistant to the National Cancer Institute.

The Office will remain under the direction of Dr. Olesen as a part of the Sanitary Reports and Statistics Division which is, indeed, a division of health information. The primary objectives of the Office of Public Health Education, Dr. Olesen said, will be to demonstrate by precept and example the modern technics of health information. Emphasis will be primarily on the presentation of publications for the layman, attractive not only in content but in format as well. Informality of style, typography, illustration, color, and other means necessary to catch the eye will be developed in these publications. A large part of the work of the Office will be the preparation of materials for other divisions and individuals of the Public Health Service, and may extend to the preparation of exhibits. One of the first objectives of the Sanitary Reports and Statistics Division for this year will be the revision and bringing up to date of previous publications of the Service.

The Health Officer—first publication of the Office of Public Health Education—will continue to be issued on the present basis. Mrs. Elizabeth G. Pritchard, who has been with the Office since its establishment, will act as Editor.

The Health Officer began with a monthly circulation of 1,000. No efforts have been made to increase the circulation, but through requests to the Surgeon General, the mailing list now totals 2,299. The publication is available free of charge, upon request, to the personnel of official and nonofficial public health agencies, social welfare agencies, and personnel of educational departments and institutions, as well as to libraries. Owing to the obvious limitations of a gratis publication, the circulation is limited and regulated by order of the Surgeon General. Upon his approval, representatives of the above mentioned organizations may be placed on the mailing list.

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York, N. Y.

How Many Public Health Educators Are There?—Who knows the answer? *No one!* But, with a little help from the field, we are about to get the answer.

The Department of Social Work Interpretation, Russell Sage Foundation, has undertaken a census of positions in health and social agencies which are concerned with adult education, interpretation, public relations, or publicity.

A brief questionnaire is being distributed with the coöperation of national agencies with which are affiliated some 10,000 organizations. To secure comprehensive covering of the health education field, readers of these pages are urgently invited to ask for a census blank, and to volunteer to get blanks filled out by other health educators in their cities or states. Please write to Mary Swain Routzahn, Russell Sage Foundation, 130 E. 22d St., New York, N. Y.

Following the census there will be studies of what preparation is needed, and how it may be secured. The several inquiries will cover those who give their whole time, or a considerable share of time under such titles as director or secretary of health education, publicity secretary, editor, staff writer or artist, or who have to do with printed matter, newspaper releases, motion pictures, exhibits, radio, and so on. All but the clerical or office staffs will be included. Geographically the study is limited to the United States.

Even a mere listing of the actual health education workers in itself would be of great interest, and of considerable value.

Health Education De Luxe—At a dollar a throw a large, influential constituency is getting a sound course in highly significant health topics. *Fortune*, 135 East 42d St., New York, N. Y., the dollar a copy magazine, has presented the following subjects in 1937-1938 to date:

March, 1937: "Cancer, The Great Darkness . . . which engulfs 135,000 lives per year."

November, 1937: "Death Comes to the Average Man . . . via the heart and the arteries, which kill more people than cancer, tuberculosis, nephritis, and pneumonia put together."

January, 1938: "The Accident of Birth." . . . "A $250,000,000 industry is scrutinized for 'social responsibility' and is found to be in need of some drastic legislation—one way or the other . . . This article is being published in the interests of the health and well-being of persons who are exposed to the products of the birth control industry. It is NOT a discussion of the technics of contraception. It has been read and endorsed by Dr. Morris Fishbein, editor of the Journal of the A.M.A., and by Dr. Paul Nicholas Leech, Secretary of the A.M.A. Council on Pharmacy and Chemistry."

Health Education in Journal, Feb., 1938—References in American Journal of Public Health:

"Health Education for the Millions," by Dublin and Calver (pp. 117–122): about health and medicine at New York World's Fair.

In "Syphilis Control in Industry," by Sayers, p. 155 and 156):

Is the campaign against syphilis going to be a nine days' wonder, another thing that "something ought to be done about," or will it be translated into definite programs? . . .

Industry with its compact organization will find the development of a vigorous education program profitable. . . .

Industry might extend that educational campaign into the field of prophylaxis.

In "The Rôle of the Nurse in the Control of Syphilis and Gonorrhea," by Crain (pp. 181 and 182):

The attitude of the worker . . . is fostered by education, and the development of a scientific attitude toward these disease problems. It becomes crystallized as the worker acquires a deep respect for personality, a growing ability to see situations through the eyes of the patient, an aptitude for building on strengths rather than weaknesses, and a profound faith in the powers of persuasive

teaching and the futility of the weapons of fear and force.

It cannot be too strongly emphasized that effective work in syphilis and gonorrhea control requires informed, well trained workers. Education on the job, through institutes, staff education, and summer school courses, must be accepted as a necessity, and improvement and enrichment of courses in training schools should be stimulated.

(See also "Education" on page 182.)

In "A Suggested Program of Control of Amebiasis by Health Departments," by Craig, the program of control includes (page 192)

The education of the public regarding the infection and its importance as a public health problem, by means of printed information, radio talks, etc.

"Journal Policy," an editorial statement in pages 198–199, is of importance to every reader.

School health educators will note the book review on page 221.

"A Selected Public Health Bibliography" (pp. 222–224), as always includes material of interest, as does "News from the Field" (pp. 229–235).

Radio Censors Cancer Education—As reported in *Bulletin*, American Society for Control of Cancer, 1250 6th Ave., New York, N. Y. (Feb., 1938):

The problem of what may and may not be said about cancer on the radio continues to present difficulties to speakers: Michigan reports through Dr. Henry J. Vandenberg that radio stations in the state have adopted a liberal policy in keeping with the modern tendencies and now permit the mention of womb, rectum, and breasts. From St. Louis a speaker says that she was not permitted to use the words "breasts, uterus, or body openings." It would be valuable for the American Society for the Control of Cancer to receive reports from physicians who have had similar difficulties on what they are not permitted to say over their state radio stations.

"The Health Officer," Dec., 1937—This monthly is published by U. S. Public Health Service.

"Dr. Nash's Cookery Book" (an English health officer writes a cook book for cutting the cost of good food) . . . Youth fights syphilis (what the Y.M.C.A. is doing) . . . Syphilis control training at Harvard (a full year course) . . . The informative content of education by H. G. Wells (condensed from *Survey Graphic* for Nov., 1937).

"The Health Officer," Jan., 1938—This issue of the magazine issued by U. S. Public Health Service contains material on health education:

"WPA adult education project issues sample health kits" (sample collections of health material and list of sources supplied for use by state and local adult education groups).

"Public relations for public health" (by Bleecker Marquette, first given at the A.P.H.A. meeting in New York).

"Dental health" (health education for the profession, with announcement of American Assn. of Public Health Dentists).

In "News Briefs" a number of paragraphs on health education.

Hygeia for March, 1938—Published at 535 N. Dearborn St., Chicago, Ill., at *25 cents* a copy.

Syphilis . . . How to blow your nose . . . Heart murmurs . . . Eyes and the office worker . . . Nurses in the making (picture scenario of a movie) . . . Tuberculosis and literary genius . . . Infections (little dangers) . . . Leprosy . . . Parasite tricks ("the tramps, loafers, and sharpers of the biologic world") . . . Fatigue and rest . . . The amebas (a doctor's armchair story to Sonny) . . . Health teaching helps by radio and April to June announcements of A.M.A. broadcasts . . . New books on health . . . Questions and Answers.

In "School and Health" by J. Mace Andress:

Building the health curriculum in the high school . . . All in the day's work (Syracuse) . . . Body building and regulating foods (iron and iodine) . . . Seeing is believing (where to get films and other visual material).

WANTED

Reprints about health education; samples of health education printed matter, broadcasts, etc.; copies of

house organs and magazines; catalogues or lists of graphic materials, publications, etc., are invited by Dr. A. Chavarria, Secretaria de Salubridad Publica Y Protection Social, San José, Costa Rica.

BULLETINS OR ORGANS

Second class mail is used for some state and local bulletins, 3d class for others. If those who have been unable to secure second class privileges will report that fact to the editor of this department consideration will be given to what may be done about it.

Young looking and vigorous is *Michigan Public Health* which with the Jan., 1938, issue

. . . begins its 41st year of continuous publication as the official bulletin of the Michigan Department of Health. It is with pardonable pride that we look back over this lengthy historical panorama of public health activities in Michigan. . . .

This publication is probably one of the oldest continuous bulletins published by a state department of health. First issued in 1898, just 25 years after the creation of the original Michigan State Board of Health, the bulletin continued for 8 years as a monthly publication under the title of "Teachers' Sanitary Bulletin." In 1906 it was changed to a "Public Health Quarterly." The bulletin was again issued on a monthly basis in 1913 and the current Volume XXVI is numbered from that date.

It seems entirely fitting that *Michigan Public Health* should begin the New Year in a new dress. We thus go modern in a revised format. The cover is the work of Miss Pearl Turner, staff artist of the Bureau of Education. The two column type page, the headings, captions and type styles should make for a more effective and pleasing presentation of subject matter. The new format, however, will not lessen our emphasis on content. *Michigan Public Health* will maintain those standards of worth which have made it an important medium of health education in this state for four decades.

Back issues of *Chicago V. D. Bulletin*, Board of Health, Chicago, Ill., quickly go out of print. And

Since it is not possible to supply past issues, it is planned that the 6th month's issue will carry reprints of some of the matter that has appeared in the previous five, about which most inquiries have been received. The December issue, therefore, will contain a reprint of all matter previously published, in answer to queries concerning the Marriage Law Examination—the Chicago Plan of V. D. Control—the outline of treatment of syphilis—information concerning service offered by the Board of Health—etc.

Quoted from *Health Bulletin*, North Carolina State Board of Health, Raleigh (Feb., 1938):

In this issue of the *Health Bulletin*, we present to our readers who reside outside the state, some of whom live in every state in the Union and in every civilized country in the world from Ongole, India, to Labrador, two comparatively new views of the North Carolina scene in the beginning of the year 1938.

Delaware Health News, State Board, Dover, went red in winter, 1938, number. Something in red on front and back covers, and on alternate pages throughout.

Did we call attention to the fact that *Venereal Disease Information*, after being mimeographed 18 years, now comes in printed form? U. S. Public Health Service, Washington, D. C. *50 cents*, a year (send to Supt. of Documents, Washington, D. C.).

Georgia's Health, State Dept. of Public Health, Atlanta, is one of the bulletins or house organs which holds a blank space on the back page upon which is stenciled the addresses to which it is mailed.

In *Arizona Public Health News*, State Board of Health, Phoenix:

"While the contents of the magazine are not copyrighted, credit is requested wherever material is used."

Monthly Bulletin, Indiana Board of Health, Indianapolis, comes in a new dress—a brand new cover with space for a photograph and mention of leading articles.

News Letter, California Tuberculosis Assn., 45 2d St., San Francisco,

appeared in February in printed form.

We are always glad to see the selected copy from various sources which appears in *Bulletin,* Dept. of Health, Lincoln, Neb. But every time we wish that the editor would drop the word "Exchanges" and the odd ornament which appears above it in every issue. The use of "Exchanges" once was common enough in rural newspapers, but many of today's readers will not understand its meaning in the *Bulletin.* And it is not needed.

A book in Chinese is reviewed in *Public Health Reviews,* Ann Arbor, Mich. Oct. 15, 1937. "Health Education in Kindergarten," by Zong Chow. Published by Commercial Press. Under stress of a common editorial convention, the omission of the city of publication, we are left to guess that this book was issued in Shanghai, or was it Hong Kong?

"Browsings" heads a corner in *Monthly Bulletin,* Indiana Division of Public Health, Indianapolis. Both articles and books are briefly mentioned.

"Diabetes" is subject of an entire issue of *Iowa Public Health Bulletin,* Des Moines, Oct.-Dec., 1937.

Diabetes was the central theme of *Commonhealth,* Massachusetts Dept. of Public Health, Boston. Apr.–June, 1937. 78 pages on diabetes; 6 pages on departmental matters.

"A few false advertisements from current publications" are reproduced in miniature on the cover of *Birmingham's Health,* Birmingham, Ala. Feb., 1938. In 5 columns 36 advertisements appear as an introduction to a 5 page presentation of a new food and drug law.

"Know Your Health Department" is a series in *Baltimore Health News,* Baltimore Health Dept., Md. Sketches of staff members, with portraits.

"Public Instruction—One of Today's Big Jobs in Syphilis Control." *Health News,* State Dept. of Health, Albany. Feb. 14, 1938. A review of progress in terms of New York State.

Six pages of pictures and text were reproduced in *Everybody's Health,* 11 W. Summit Ave., St. Paul, Minn. Jan., 1938. From *Life, Look,* and *Literary Digest,* 2 pages each, with a double page spread of Minnesota pictures.

"Timely Articles in Recent Publications," and "Book and Pamphlet Notices" are headings in *Ohio Public Health,* Ohio P.H.A., 1575 Neill Ave., Columbus.

"Your Body and Health," a series of health lectures in Providence, is described in *Health Review,* Rhode Island State Dept. of Health, Providence. Jan. 1, 1938.

DATES AHEAD

Early Diagnosis Campaign is now on, an opportunity for many welfare and health agencies to coöperate with the tuberculosis groups.

This issue will be out in National Negro Health Week. For reports watch for *National Negro Health News,* U. S. Public Health Service, Washington, D. C. *Free.*

A mimeographed health sermon, distributed for use in N. N. Health Week, will be useful where the Week is celebrated locally at a later date. *Free* from U. S. Public Health Service.

U. S. Children's Bureau was established 26 years ago. Worth talking about.

And the start of National Child Labor Committee 34 years ago is worth a word of thanks.

St. George slew the dragon on April 25.

Again, Moving Day, May 1, is a time for certain health suggestions.

And May Day will again be Child Health Day in many communities.

Mother's Day, May 8, will be officially celebrated locally within the week before or week after, by American Legion Posts. Much maternal care

material will appear in newspapers and magazines. For plans and data write to Maternity Center Assn., 1 E. 57th St., New York, N. Y.

National Hospital Day and Birthday of Florence Nightingale come May 12.

June makes the 57th year of Red Cross history in the United States.

MAGAZINE ARTICLES

"Are You Afraid of Syphilis?" by R. E. Lindenberg. *Survey Midmonthly*, 112 E. 19th St., New York, N. Y. Feb., 1938. *30 cents.* Some employment and other back-firing from publicity. In same issue: "Women and Children Last," by Beulah Amidon. Based on the recent Children's Bureau Conference.

"Cold Comfort," by J. D. Ratcliff. *Collier's.* Feb., 26, 1938. "A sneeze from a sick ferret proved the answer to a researcher's prayer."

"A Health Program for Rural America," an interview with Dr. Thomas Parran by Carroll P. Streeter. *Farmer's Wife Magazine,* St. Paul, Minn. March, 1938. *5 cents. 3 cents* each for 10 or more.

"Insanity and Insulin," by C. Charles Burlingame. Hope in the use of insulin. . . . "Birth Control and Prosperity," by E. H. Clarke. Economic significance of lowering the birth rate. ***Forum,*** 570 Lexington Ave., New York, N. Y. Feb., 1938. *35 cents.*

"Killed in the Kitchen," by Dr. Louis I. Dublin. ***This Week,*** the newspaper Sunday magazine distributed in many cities. Nov., 14, 1937.

"The Life of a Medical Student" is a 6 page spread, arranged by Dr. Morris Fishbein from pictures taken in 5 Chicago medical schools. ***Look,*** Des Moines, Ia. March 15, 1938. *10 cents.*

"One Out of Ten Has It," by D. Beres. *New Republic,* 40 E. 49th St., New York, N. Y. Sept. 25, 1937. 2 col. review of books by Parran and Becker. A sample of magazine space gained through book reviews.

"Our Arthritis," by Dr. Logan Clendening. *Saturday Evening Post.* Feb. 12, 1938.

A 2 page advertisement of *Ladies' Home Journal* in *Saturday Evening Post* for Jan. 22, 1938, itself was an effective piece of health education.

In color; head and bust of a young woman at left; "Yes! I will take a Wassermann Test" across top of the two pages; right page in text, with "This New Attitude Affects Your Own Business" in a panel.

"When We Choose Health Insurance," by Dr. D. W. Orr, and Jean W. Orr. *Survey Graphic,* 112 E. 19th St., New York, N. Y. March, 1938. *30 cents.* Consideration of questions growing out of the series of papers reporting on the actual working of British health insurance.

RADIO

Chicago Board of Health is broadcasting some aspect of syphilis Wednesday and Saturday, 1:35 P.M., over Station WAAF.

Manitoba Dept. of Health and Public Welfare, Winnipeg, started "The Health Reporter" in Oct., to run through May 27, over Stations CJRC and CJGX, Thursday, 8:05 P.M., to 8:15 P.M.

A health reporter will give a summary of the week's news concerning new health ideas and events, as a means of keeping listeners in touch with health matters of current interest.

Manitoba's "Health Review" comes over Stations CKY and CKX every Wednesday, 4:45 to 5:00 P.M. From March 30 to May 11 will run

"The Health Detective in Science," a series of 7 talks to relate how science aids in safeguarding and promoting health and welfare. Three talks on venereal diseases will be included in the spring and summer

program as a continuation of the series given last season.

"Motor vision in safe driving" and "Sight saving." Radio talks in *Sight-Saving Review,* 50 W. 50th St., New York, N. Y. Sept., 1937. *50 cents.*

"Our Daily Bread" is a broadcast interview by Dr. James A. Tobey. Copies for use from American Institute of Baking, 9 Rockefeller Plaza, New York, N. Y. *Free.*

Hartford Tuberculosis and Public Health Society, 488 Main St., broadcasts weekly over WDRC and WTIC.

Baltimore City Health Dept. and Medical and Chirurgical Faculty of Maryland:

> Pasteurized pastries prevent disease. . . . All fireworks are dangerous. . . . Helpful use of summer leisure. . . . Keeping well eyes well. . . . Tick-bite fever. . . . Save a life! (from drowning). . . . Death may lurk in the paint can (danger to little children of lead in paint). . . . Water, crystal clear and safe. . . . Banish the common food containers.

Quoted from a radio talk: ". . . to develop immunity for the *oral administration* of . . ." (Our italics.)

The annual *World-Telegram* poll of radio editors asked for opinions as to NBC's refusal to allow General Hugh Johnson to broadcast on venereal diseases. The majority of the editors were against the censorship.

"Catalog of Electrical Transcriptions of Radio Health Plays." New York State Dept. of Health, Albany. Revised. Lists 117 records; plays only; no opening or closing announcements; no mention of New York State Dept. of Health; running about 10 minutes; suggested opening and closing announcements supplied with the records. There are 23 additional records for use in New York State only, because they include the opening and closing announcements.

"Educational Broadcasting Needs Improvement," by Hopkins and McCarthy is a helpful resumé of selected points made in the Second National Conference on Educational Broadcasting, Chicago, Nov. 29–Dec. 1, 1937. In *Bulletin,* National Tuberculosis Assn., 50 W. 50th St., New York, N. Y. Feb., 1938. Copies may be found in any tuberculosis association office.

A review of Second National Conference on Educational Broadcasting is in *Education by Radio,* 1 Madison Ave., New York, N. Y. Jan., 1938. *Free.*

Wisconsin Anti-Tuberculosis Assn. conducted its third annual High School Health Radio Contest, closing Dec. 23, 1937, in coöperation with *Milwaukee Journal* station.

We have seen only a few of the expanding collection of books on broadcasting. Yet we doubt that anywhere else will the health broadcaster get as much for so small an investment as in a copy of "Handbook for Amateur Broadcasters," by Pauline Gibson. Scholastic Publications, Chamber of Commerce Bldg., Pittsburgh, Pa. 60 pp. Many illustrations. *50 cents.* The Handbook is addressed primarily to high school, college, and little theatre groups. It gives many helpful glimpses behind the scenes in actual broadcasting, together with much of the sort of information and suggestion needed by amateur writers, actors, and producers. It will be helpful in mock broadcasting on the stage or in the classroom; in broadcasting over school loud speaker systems; and in actual station broadcasting.

SCHOOLS AND CHILDREN

Although we announced the discontinuance of School Education Service (partial successor to American Child Health Assn.) it may be well to reprint this request sent out last September:

> The School Health Education Service, conducted since 1935 under the auspices of the Joint Committee on Health Problems in Education, has been discontinued.

Will you please take this name from your mailing list and delete any reference to services formerly obtainable from this source from your reference lists and bibliographies.

Readers, please note that incorrect addresses and out of date references are amazingly long lived. Better check reference lists and address files.

"Alcohol in Youth's World," by W. R. Breg. *Journal*, N. E. A., 1201 16th St., N.W., Washington, D. C. Oct., 1937. *25 cents.* Something about the problem; something about Allied Youth, at the above address, which seeks to serve the schools in meeting the problem.

An interesting example of interpretation comes from Dr. R. K. Galloway, director, school health service, Public Schools, Nashville, Tenn. Dr. Galloway writes:

The Nashville Council of Parent-Teachers' Associations is publishing this year a bulletin each month pertaining to the city school system, that they are distributing to their respective organizations, and other local interested citizens. The subject of the September number was the "History of Nashville Schools," October's bulletin was on the "Physical Condition of the School Buildings," and the November issue was edited by us on the "School Health Service."

Probably the mimeographing and binding of the Nashville pamphlet was done by students. A sub-heading, or two of them, on every page would have aided the reader.

"Dental Health Education: Can School Children Get It?" This question is asked and answered in Feb., 1938, issue of *Bulletin*, Mich. School Health Assn., Ann Arbor, Mich., even though the address is not given in the *Bulletin*.

"The Problem Solving Approach in Health Teaching" comes from Michigan Joint Committee on Health Education, Haven Hall, Ann Arbor. *25 cents.* The Foreword says:

Various methods are used in the schools to help children achieve "healthy living." Some of these methods are more closely related to the needs of boys and girls than others and seem more effective in changing their actual behavior. This bulletin reports a type of activity in which pupils and teachers coöperate in the discovery and handling of the actual health problems of home, school and community.

The American Dental Assn., 212 E. Superior St., Chicago, Ill., is conducting a national dental health poster contest. Local and state contests lead up to the national, including display of posters at the annual meeting of A.D.A. in St. Louis next October. Write the association for details.

"Health of School Children Far and Near," by Sally Lucas Jean, *Public Health Nursing*, New York, N. Y., Dec., 1937. *Junior Red Cross Journal*, Washington, D. C., is doing a fine job on social problems in high schools. "What About the Home Town?" by Leonard W. Mayo, in the Jan., 1938, issue takes up "Haunted Houses." Housing is presented as a story of high school students who study the subject, and try to do something about it.

Probably the biggest circulation among health periodicals is that of *The Health Broadcaster*, a "monthly health newspaper published for pupils, parents, and teachers" by Department of Health Education of Board of Education, 157 E. 67th St., New York, N. Y. In the school year once a month 1,400,000 copies are distributed of this 4 page, 8 by 10 inch, publication.

"The Tuberculin Test in the Schools of San Francisco," by Geiger, Owen and Barret. Dept. of Public Health, San Francisco, Calif. Reprint. *Free.*

"Safety and Health of the School Child," by Dr. J. F. Rogers, Office of Education. "A self-survey of school conditions and activities." Questions, with practical annotations. Supt. of Documents, Washington, D. C. 29 pp. *10 cents.*

"Setting the Stage for Safety," by

H. J. Stack. ***Journal of Health and Physical Education,*** 311 Maynard St., Ann Arbor, Mich. Sept., 1937. Why do something in high schools; what health and physical education department may do alone, and in correlation with other teaching departments.

"Sources and Uses of Health Material," by Mary P. Connolly. ***Journal of Health and Physical Education,*** Ann Arbor, Mich. Dec., 1937. *35 cents.* Presented at National Education Assn., June, 1937. Based on secondary school group. Three conclusions are quoted:

"The health education teacher must be a sympathetic leader who will encourage the students to study their own situations and to form ideas of their own wants and needs . . . We may learn about the things which are supposed to be good for us, but if they have no relation to our wants, they never become a vital part of us."

"These suggestions may seem to impose a large amount of preparation on the part of the teacher. And they do. However, the vision of the teacher and her preparation for living will convey more to the student than any amount of formal teaching which she may do. If there are advances in health protection, she should know them, and intrigue the interest of the students. They will want to know about them too, if they are tied to their lives."

". . . every backyard contains acres of diamonds in one form or another if we only look for them. The same may be said of materials for health education. They lie all around us, waiting to be picked up and used and made a vital part of some student's life."

"Timely Tips on Scout Protection" runs in many issues of *Scouting,* 2 Park Ave., New York, N. Y. Sample *free.* Files probably available in most communities. A wide range of practical material for use with boys, girls, and young people.

REPORTING

A group of annual reports have been coming to the editor for 10 to 15 or more years. Among them are several which might well be reprintings of earlier issues with a new date on covers and title pages. A close examination of text and tables is needed to assure the reader that he really is looking at 1938 data.

The latest issues of these reports look like the earlier ones. The reader is not forced to recognize that progress has been made. The appearance of the report suggests the routine reporting of a routine job. It carries no atmosphere of life and growth. The citizen, or the fellow professional, must seek the evidence of growth in the face of seeming somnolence. However, and here's the rub, probably in many states and cities, type, size, paper, etc., etc., are prescribed by a supervising authority, or are subject to a state printing contract. What can be done in the face of all that?

We have some tentative ideas which can be submitted—if any health agency cares to consider them.

The annual report of New York State Dept. of Health (Albany), volume 1, is a 420 page volume, including 16 pages of index. Even that index does not fully satisfy this reader who would like to see some additional cross-references. For example: we do not find under cancer, slides, photographs, exhibits, transparencies, or public health education any reference to the following quoted paragraphs, 2 of 5 paragraphs under the sub-heading, "Photography," in the report of Division of Cancer:

The photographic department has continued its service to the Institute. For the clinical department we have photographed all patients with visible lesions and supplied lantern slides for the staff for lectures as well as reproductions necessary to illustrate the papers written during the year. A good part of our time has been given to the making and arranging of exhibits. This department has supplied transparencies both for lay and medical meetings during the past year. At the present time we have over 900 transparencies in black and white as well as in color.

Our lantern slide library now numbers

over 3,000 slides and it is becoming so large that the available storage space is very rapidly becoming insufficient. The severe handicap with which we have to deal is the lack of sufficient space to store necessary equipment as well as lantern slides, transparencies, negatives and our records. We hope that room can be procured to overcome this condition.

"Middletown First in Group for Health in Cities of the United States," is the heading of a slip for enclosure to 5,100 subscribers by the Orange County (New York) Telephone Company. The slip explained the 1937 appraisal award. The idea originated with the telephone company.

Released for morning papers Jan. 1, 1938, was a 12 page, legal size, review of the city's health presented by Commissioner John L. Rice to Mayor LaGuardia. For some years now the statistical and reporting machinery of the New York City Dept. of Health has been geared to produce preliminary data of considerable significance for immediate public use at the end of the calendar year. Doubtless copies will be supplied upon request.

Dated September, 1937, is a "summary report" of New York City Dept. of Health, 47 printed pages, covering 1934–1936.

"What the Health Department Nurse Does for You." Bureau of Nursing, Dept. of Health, 125 Worth St., New York, N. Y. *Free.* 15 pp.

A nurse's day; tuberculosis comes to a home; citizens of the future; there is a placard on the door; tomorrow's grown-ups; on the safe side; 35 years of work.

FOR EDUCATION OR REFERENCE

Some of the single publications mentioned here need to be asked for promptly before the edition is exhausted.

"An organization to better the standards and administrative practices of all kinds of public activity in housing for families of low and moderate income." This is National Association of Housing Officials and others, not housing officials, 850 E. 58th St., Chicago, Ill. Please ask for a descriptive pamphlet.

"Child Labor in the Tiff Mines" (Missouri), by C. E. Gibbons. National Child Labor Committee, 419 4th Ave., New York, N. Y. 30 pp. *25 cents.*

"Community Provision for the Serum Treatment of Pneumococcic Pneumonias," by a committee of New York Academy of Medicine, 2 E. 103d St., New York, N. Y. *Free.*

"Disease Conditions of the Mouth and Their Relation to Health." American Dental Assn., 212 E. Superior St., Chicago, Ill. 13 pp. *5 cents.* Also, "Dentistry and Public Health." Large page, illustrated, popular. 31 pp. *10 cents.*

"Help Yourself to Good Teeth" is an envelope size, 4 page folder emphasizing that proper food plus cleanliness plus dental care equals sound teeth. Dept. of Health, New York, N. Y.

"How to Join the 3 Cents-a-Day-Plan for Hospital Care." Tells what, who, and how. Associated Hospital Service, 370 Lexington Ave., New York, N. Y.

"Many a Germ 'Twixt Cup and Lip" is a 4 page folder, reproducing a cover page of *Readers Digest*, with an abstract of an article from *Survey Graphic*. Copies free from Public Health Committee of Cup and Container Institute, 50 W. 50th St., New York, N. Y.

"The Safety and Sanitary Features of Excellent Rooming Houses" is a 4 page folder distributed by Health Service, University of Illinois, Champaign.

"Bibliography on Public Health and Allied Subjects." This is the 24 page classified list of books issued in the last 5 years. *All titles are dated.* Additions to the previous annual list are

indicated. *Free* from American Public Health Assn.

If you wish to check health education (including physical education and recreation) publications issued by Office of Education, Washington, D. C., consult "List of Publications of Office of Education, 1910–1936." No price is given.

"Literature, Posters and Exhibits for Women's Field Army." American Society for Control of Cancer, 1250 6th Ave., New York, N. Y. *Free* list.

"Pictorial Charts and Maps." A 20 page catalogue of pictorial charts, lantern slides, ready-made symbols. Pictorial Statistics, 142 Lexington Ave., New York, N. Y.

"Publications on Play and Recreation." National Recreation Assn., 315 4th Ave., New York, N. Y. *Free.* Classified list of publications, some of which are free.

"Public Health Service Publications." List of publications issued Jan. to June, 1937. U. S. Public Health Service, Washington, D. C. *Free.*

From Nursing Information Bureau, 50 W. 50th St., New York, N. Y.

"Nursing and the Registered Nurse." 54 pp. *10 cents.* . . . "Nursing and How to Prepare for It." 21 pp. *5 cents.* . . . "Nursing a Profession for the College Graduate." 17 pp. *5 cents.*

National Organization for Public Health Nursing, 50 W. 50th St., New York, N. Y., reprints at *10 cents* each:

"A Training Course for Volunteers in the Public Health Nursing Field" . . . "A Program for Staff Education: Infant and Preschool Health" . . . "Vacations and Hours of Work for Public Health Nurses in 1937."

RECOGNITION AND INSTRUCTION

A Council on Public Education, Michael M. Davis, Chairman, is one of the 6 Councils of the American Hospital Association, according to 1937 convention action.

Item 13 in the general purposes of the Chicago Hospital Council:

To plan, organize, and carry out a program intended to inform and educate the public regarding hospitals and the intelligent use of the services which they offer.

In the annual meeting of the New Jersey Tuberculosis League a "health education session" was conducted by William A. Doppler of Health Education Service, National Tuberculosis Assn.

The New England Health Education Assn. has planned three series of section meetings to be held in the fall and winter months; school nurses, full-time teachers, and classroom teachers. Address the Secretary, Katherine Hitchcock, Simmons College, Boston, Mass.

Planning window displays for local health and social agencies Evart G. Routzahn spent an afternoon with agency representatives in Greenwich, Conn.

"Taking the Public With You," by Mayhew Derryberry, U. S. Public Health Service, was on the program of the State Health Conference, Charleston, W. Va., Nov. 9, 1937.

PLANNING PUBLIC EDUCATION

"Health Education in Pennsylvania," by A. M. Dewees. *Bulletin,* National Tuberculosis Assn., 50 W. 50th St., New York, N. Y. June, 1937. "How the State Association organizes its program."

"Publicity in Control of Tuberculosis," by J. M. Bridges. *Bulletin,* National Tuberculosis Assn., 50 W. 50th St., New York, N. Y. Reviews use of newspaper and radio, and emphasizes the publicity material ready at hand in tuberculosis work (applies to other health work?).

There is conflict in your relentless battle against tuberculosis; drama in the work of your clinics and your nurses; consequence in the results that may be expected when your research opens up new possibilities of overcoming disease; prominence in the names of the men and women in your respective communities who have given and continue to

give of their time and effort in this worthy cause; oddity in the facts which your clinics reveal; human interest in its broadest sense in the opportunities to serve those who cannot serve themselves; tragedy in the failures to apply the principles which you have been endeavoring to establish in the minds of America; and the sublime satisfaction of a job well done in the notable accomplishments attributed to your organization.

"Sewage Disposal—Its Effects Upon Public Health," by Drs. Cox and Ehlers. Conditions in certain cities which led to active campaigning by the State. *Municipal Sanitation,* 24 W. 40th St., New York, N. Y., Oct., 1937. *15 cents.*

PUPPETS—MARIONETTES

Because of local and nearby interest in puppetry we hope that at Kansas City, next October, we will have a demonstration of the educational use of puppets. And why not some puppet examples in the convention Hobby Show?

If interested in puppets, for education or as a hobby, it will be a delight to read and look through Paul McPharlin's "Puppets in America: 1739 to Today." The record really starts before the days of Columbus, with several illustrations of puppet types used by American Indians before the days of white men. A readable review of how puppets came west to America, how they flourished and waned, and flourished again, precedes an intimate personal story of the first American puppetry conference. More than 180 hand puppets, marionettes, rod and shadow puppets are pictured, thus illustrating many types of characters and of puppetry presentation. Published by Paul McPharlin, Birmingham, Mich. *$2.00.*

"Making Marionettes," by E. F. Ackley. *American Junior Red Cross News,* Washington, D. C. Oct., 1937. *10 cents.* Simple directions for home or school.

"Marionettes Become Health Conscious," by Edith S. Countryman, R.N. *Public Health Nursing,* 50 W. 50th St., New York, N. Y. Aug., 1937. *35 cents.* Includes "Infanticipating at the Kelly's" in 3 scenes.

"Marionettes in Parent Education," by J. K. Francis. *Journal of Home Economics,* Mills Bldg., Washington, D. C. Nov., 1937. *30 cents.*

Marionettes, the dolls of the adult, can be used successfully to illustrate parent education, with a dialogue written to emphasize interesting points.

The making of marionettes is a hobby requiring skill and patience and has provided an artistic outlet for many persons. There are many helpful books available on the technic of making them. The shaping and balancing of the doll's body appeal to the mechanically minded. Dolls made with wood bodies and jointed with metal screw eyes are sturdy and pliable. Leather strips are often substituted for screw eyes and make a more graceful doll. The completion of a marionette gives one the sense of having created a real actor.

Some puppets are marionettes, as explained in "Puppets in America," by Paul McPharlin:

In modern usage, the name *puppet* is given all theatrical figures animated under human control. Some puppets, worked from above by strings, are called marionettes . . . Hand-puppets, with hollow bodies into which the fingers and wrist are thrust to give movement, run second in popularity. Shadow-figures, black or colored, have great effect, and are not so often seen as they might be. A few producers are experimenting with rod-puppets. Cardboard figures worked with wires from the wings of a toy stage are occasionally revived for living-room entertainment. There are 7 puppet types and their variants, each of which is fascinating in its own way.

With any kind of interest in puppetry you will be interested in "Puppetry Bulletin: 1937–1938." Where to get supplies and equipment; the new books and pamphlets; classification of puppets. Paul McPharlin, Birmingham, Mich. 24 pages. *3 cents.*

BOOKS AND REPORTS

Books of Special Interest to Public Health Workers

MAZÝCK P. RAVENEL, M.D.

OUR annual review of books on public health has been favorably received for several years so that it has seemed worth while to go over those published in 1937 and a few in the early months of 1938, and call them once more to the attention of public health workers, physicians, and nurses, and, in fact, to all who are interested in preventive medicine and public health. As in the past, our selections have been based chiefly on books reviewed in this *Journal*. Among others, however, which have been read through the year and from which selections have been made are the *British Medical Journal*, The *Lancet*, and the *Journal of the American Medical Association*. We trust that the present review will meet with the approval of our readers and give some helpful suggestions.

NUTRITION

We have elsewhere pointed out that in England the two great public health movements which have been attracting attention for several years past are housing and nutrition. That housing is attracting attention in this country is shown by the fact that at our Annual Meeting we had a symposium on the Hygiene of Housing; yet few books have come in to us during the current year on either housing or nutrition. It is true that there have been a number of new editions and compilations on nutrition, but no outstanding works have come to our attention. Among these, in view of its originality and its practical bearing, there should be mentioned ***Dr. Nash's Cookery Book,*** by Elwin H. T. Nash, Simpkin, Marshall, Ltd., an extensive study on providing nutritious foods and preparations at low cost. It is very highly spoken of in England and has had favorable reviews in this country. ***Man, Bread and Destiny,*** C. C. and S. M. Furnas, Reynal & Hitchcock, is a discussion of the development of civilized man interpreted through his food intake, a fascinating study of nutrition adapted to the layman. Among the notable new editions are ***Chemistry of Food and Nutrition,*** by Henry C. Sherman, 5th edition, Macmillan, which is an indispensable text, ***Vitamins—In Theory and Practice,*** by Leslie J. Harris, 2nd edition, Macmillan, presents with a minimum of academic uncertainty a summary of knowledge in this field. It is unexpectedly complete and has an up-to-date wealth of detail. ***Dietetics Simplified,*** by L. Jean Bogert and Mame T. Porter, Macmillan, is intended primarily for students in home economics. It contains information for the public also, and is authentic, complete, and understandable. ***A Laboratory Handbook for Dietetics,*** by Mary Swartz Rose, 4th edition, Macmillan, has for many years been a standard textbook for college laboratory classes in dietetics and an invaluable source of reference material for all those concerned with practical problems in dietetics. Much new information is given in this edi-

tion. *Food Technology,* by Samuel C. Prescott and Bernard E. Proctor, McGraw-Hill, is an impressive book designed to aid in training the scientific personnel now required in food industry. Of distinct value to sanitarians and all concerned in the production or control of foods. *The Foundations of Nutrition,* by Mary Swartz Rose, 3rd edition: This text appears in a new format, very attractive. It has been brought up to the minute, will maintain its place as a standard for teaching and reference.

NURSING

The past year has been notable in that the 25th anniversary of the National Organization for Public Health Nursing was celebrated. There have been papers of various kinds, but only one book which we have seen. *Nursing as a Profession,* by Esther Lucile Brown, Russell Sage Foundation, is a reliable and up-to-date source of information for all interested in nursing, giving an insight into the aims, activities, and problems of the nursing profession. *School Nursing: A Contribution to Health Education,* by Mary Ella Chayer, 2nd edition, Putnam, is revised and enlarged, with a chapter on Rural School Nursing, and is practical in every chapter.

HYGIENE AND INDUSTRIAL HYGIENE

Under the general heading of hygiene, industrial hygiene is still demanding much attention, as new chemicals, many of them known to be as possibly injurious to workers are coming more and more into use. The revival of industry in 1937 brought some of these things to the fore. No great work has appeared during the year. Worthy of mention, however, are *Facts and Frauds in Woman's Hygiene,* by Rachel Lynn Palmer and Sarah K. Greenberg, Vanguard, which is especially valuable for lay women, *Modern Principles of Ventilation and Heating,* by T. Bedford, H. K. Lewis & Co., which consists of three lectures under the Heath Clark Bequest at the London School of Hygiene and Tropical Medicine. By an outstanding authority, this work will have a wide reception in this country. *Second Symposium on Silicosis,* by B. E. Bekuechle, Editor, Employers Mutuals, is indispensable to all those who are interested in silicosis. *Personal Hygiene,* by C. E. Turner, Mosby, is a practical text written in interesting style. *Handbook of Hygiene,* by Joseph W. Bigger, Wood, is a 5th edition. The market is flooded with books on hygiene. This is an especially good one, concise and adapted to general use. *A Synopsis of Hygiene,* by W. W. Jameson and G. S. Parkinson, J. A. Churchill, Ltd., is a standard work in its 5th edition.

HEALTH EDUCATION

Health education has been well represented during the year as it generally is. The outstanding books seem to be *Creative Re-education,* by Frederick Paterson, Putnam, which is an " inspiration to all who are attempting to solve the problems of human needs." *The Doctor and the Public,* James Peter Warbasse, Hoeber, is "A timely book, yet not one that will soon be out of date." *A Health Education Workbook,* by Kathleen Wilkinson Wootten, Barnes, is designed for teachers, parents, nurses, and social workers and is an excellent practical text of great value for teachers, school officials, and health workers. *Tuberculosis Education: A Guide for Professional and Lay Workers,* by Elma Rood, Rural School Press, is rich in suggestions for health officers, public health nurses, school administrators, teachers, and community workers. *Adventures in Living Series,* by Thomas D. Wood, Anette M. Phelan, Marion O. Lerrigo, Nina B. Lamkin, and Thurman B.

Rice, Nelson—*Now We Are Growing, Many Ways of Living, Keeping Fit, Blazing the Trail, How We Live*—is an interesting series giving the latest developments in preventive medicine, and at the end of each chapter ingenious suggestions are made for vitalizing health teaching. *Man in a Chemical World,* by A. Cressy Morrison, Scribner, is both cultural and practical. It commemorates the 300th anniversary of the birth of the chemical industry in the United States and is a remarkable and useful story. *The Measurement of Outcomes of Physical Education for College Women,* by Elizabeth Graybeal, University of Minnesota Press, is important as an attempt to evaluate the great efforts now being made in all educational institutions on physical education.

BACTERIOLOGY, PARASITOLOGY AND PATHOLOGY

Perhaps the most notable book under this grouping is *Clinical Parasitology,* by Charles Franklin Craig and Ernest Carroll Faust, Lea & Febiger. It is a new textbook by leading American authorities on tropical medicine and parasitology and is undoubtedly the standard textbook in its field. *Malaria in Europe,* by L. W. Hackett, Oxford University Press, is a valuable contribution to the book-shelf of malariologists, physicians, public health workers, and laymen interested in control of this disease. *Handbook of Microscopical Technique,* by C. E. McClung, 2nd edition, Hoeber, contains many improvements over the first edition and is of great value as a book of reference. *Manual of Public Health Laboratory Practice,* by J. R. Currie and Contributors, Wood, is an excellent book for graduates, but is written for those working under English conditions. *Atlas of Hematology,* by Edwin E. Osgood and Clarice M. Ashworth, [illegible] W. Stacey, Inc., concerns public health only in the differential diagnosis of some of the anemias, though is so outstanding as to call for mention here. There is no better work on the subject. *Disinfection and Sterilization,* by Ernest C. McCulloch, Lea & Febiger, is a fine piece of work which will be appreciated by those who find the literature on the subject overwhelming and who are looking for definite knowledge. *Phenomenon of Local Tissue Reactivity and Its Immunological, Pathological and Clinical Significance,* by Gregory Shwartzman, Hoeber, is especially useful to immunologists and clinicians in assembling in one volume the mass of scattered observations on the Shwartzman phenomenon. It constitutes a fine memorial to the high ideals of the author. *Pathology (Clio Medica),* by E. B. Krumbhaar, Hoeber, is a remarkable, concise and accurate treatment of this important branch of medicine. *Practical Bacteriology, Haematology and Animal Parasitology,* by E. R. Stitt, 9th edition, Blakiston. This has always been the leading book in its line in the English language, if not in any language, and it is hard to speak too highly of it.

SYPHILIS

Because of the campaign which is being waged against syphilis, it is felt that a separate heading should be devoted to it. A notable book is *Shadow on the Land—"Syphilis,"* by Thomas Parran, Reynal & Hitchcock. It bears evidence of the interest in this scourge of mankind awakened in this country by the Surgeon General of the Public Health Service. The book brings out forcibly the important place in our public health program held by syphilis, and points the pathway to control. Two other books on syphilis have appeared. *Syphilis Sive Morbus Humanus: A Rationalization of Yaws So-Called,* by Charles S. Butler, Science Press Printing Co., is largely devoted

to a discussion of the origin of syphilis. *Who Gave the World Syphilis? The Haitian Myth,* by Richmond C. Holcomb, Froben Press, is a critical study of the controversy over the geographical origin of syphilis, well worth reading from every point of view. These books should be read together. There is also *Laboratory Diagnosis of Syphilis,* by Harry Eagle, Foreword by J. Earle Moore, Mosby, which deserves mention.

CANCER

There have been many articles on cancer and everyone knows of the intensive studies being carried out on this disease all over the world. A most useful book is *Some Fundamental Aspects of the Cancer Problem,* edited by Henry B. Ward, Science Press. It is a valuable study giving a good cross-section of cancer research at present.

MATERNAL CARE

The Principles of Antepartum, Intrapartum and Postpartum Care for the Practitioner of Obstetrics, by F. L. Adair, Editor, University of Chicago Press. Though written for the practitioner, this concise booklet will be useful to public health nurses, physicians generally as well as all others whose duties bring them into contact with prospective mothers.

CHILD CARE

Child care in its various aspects has been the subject of many articles, but not many books have come to our notice. *Guide Book for Mothers,* by Allan Roy Dafoe, Julian Messner, Inc., is written in delightful style by the famous doctor who attended at the birth of the Dionne quintuplets and guided their early days to health. *Child Care and Training,* by Marion L. Faegre and John E. Anderson, 4th edition, University of Minnesota Press. The demand for a fourth edition shows the value of this work. The authors have preserved a judicious balance between the physical, mental, emotional and social factors.

VITAL STATISTICS

Only one book of importance on this subject has come to us, *Statistical Methods in Biology, Medicine, and Psychology,* by C. B. Davenport and Merle P. Ekas, 4th edition, is "recommended to all who require data on statistical methods of the type developed by the Pearsonian school."

HISTORY

Some unusually interesting books on history have appeared. A notable book is that by Sir Arthur Newsholme, *The Last Thirty Years in Public Health: Recollections and Reflections on My Official and Post-Official Life,* George Allen & Unwin, Ltd., which is packed with observations on the history, evolution, and administrative solution of public health problems. Another unusual book is *The Mentally Ill in America: A history of their care and treatment from Colonial Times,* by Albert Deutsch, Doubleday, Doran. This is particularly valuable in view of the increasing recognition of the importance of mental hygiene in our health program. A scholarly review long needed is here supplied. An interesting book of especial value to Americans is *History of County Health Organizations in the United States, 1908–1933,* by John A. Ferrell and Pauline A. Meade, *Public Health Bulletin 222,* Public Health Service, which is a valuable source book for public health administrators and public health students in the United States.

Two unusually interesting autobiographies have appeared. *A Woman Surgeon,* by Rosalie Slaughter Morton, Stokes, is an interesting account of a useful and adventurous life. *Life and Death: The Autobiography of a Surgeon,* by Andrea Majocchi, Knight

Publications, is an unusually fascinating book with reflections on medicine, human nature, religion, superstitions, etc., through all of which the author has maintained his faith in this life and the hereafter. A book which has been reviewed most favorably is *The Mind of Man: The Story of Man's Conquest of Mental Illness*, by Walter Bromberg, Harper, which is highly recommended for historical content, and physicians generally are advised to read it.

GENERAL

It is difficult to put some books in a hard and fast group. A notable and unusual book is *American Medicine: Expert Testimony Out of Court*, by leading doctors and surgeons, the American Foundation, 2 volumes. Few books have led to more discussion of fundamentals than these volumes. We have published a review and a long editorial on the matters brought out, and it remains only to call attention again to the work, which deserves study. *The Environment and Its Effect Upon Man*, by the Harvard School of Public Health, is an effort to correlate a few of the many aspects of this subject and consists of some 19 papers by experts in their respective fields and representing our latest ideas. *Trauma and Disease*, edited by Leopold Brahdy and Samuel Kahn, Lea and Febiger, is an extension of the usual idea of public health which has been needed for many years, and is deserving of a warm welcome. *The Traffic in Health*, by Charles Solomon, Navarre Publishing Company, Inc., is an unusually good discussion of the patent medicine question, covering habit formers, proprietary medicines, cosmetics, etc., concluding with sound advice and a good bibliography. In many ways the most notable work on this general subject. We have put under this general heading two books which might have a heading of their own: *The Psychology of Abnormal People*, by John J. B. Morgan, 3rd edition, Longmans-Green, is a second edition brought up to date of a book that is a leader in its field. *Textbook of Psychiatry*, by Arthur P. Noyes, 2nd edition, Macmillan, is a thorough revision, giving in synoptic form the broad field of general psychology and paying special attention to the field of psychiatric nursing. Under this general heading we are putting also an unusual book, especially valuable, *Principles and Practice of Public Health Dentistry*, by J. A. Salzmann, with chapters by Dr. Struthers, and Dr. McCall, Stratford. This is a book which covers a new field, of particular value in view of the increasing interest in oral hygiene by the medical profession. Deserves a wide circulation among health officers, public health workers, and doctors.

The year has seen also a new edition of *A Practical Medical Dictionary*, Thomas Lathrop Stedman, 13th edition, which celebrates the 25th anniversary of the work, and is excellent from every point of view.

Public Medical Services: A Survey of Tax-supported Medical Care in the United States, by Michael M. Davis, University of Chicago Press, is a useful and compact statement. *First Aid Textbook*, American Red Cross, Blakiston, Revised edition. "Never has the need for first aid been greater than at present. . . ." *Everyday First Aid*, by Walter Frank Cobb, Appleton-Century, is a manual for those who would be prepared—prevention, though the importance of first aid treatment is also well handled. *The Pneumonokonioses (Silicosis) Literature and Laws of 1934*, Book III, by G. G. Davis, E. M. Salmonsen, and J. L. Earlywine, Chicago Medical Press, is important for specialists and libraries.

Preview of Books for Public Health Workers

AT the invitation of the Book Service, publishers have submitted descriptions of books which will be published during 1938. Public health workers will be interested in knowing of these books in preparation. The evaluation in every case is the publisher's own.

Adventures in Respiration

By Vandell Henderson, Department of Applied Physiology, Yale University. William Wood & Company. Price probably $3.00. (In preparation.)

Goes well into the physiology of respiration and deals comprehensively with all phases of asphyxia under various conditions. A book which applies the most recent knowledge of physiology to problems both ancient and very modern, including mining, aviation, automobiles and war.

An Appraisal Form for Local Health Work

By Committee on Administrative Practice, American Public Health Association. (In preparation.)

This combines the separate rural and city "measuring rods" for community health previously published. In the first part, a series of simple tabulations provides a means of collecting essential statistics of health conditions as seen against a background of community characteristics. In the second part, public health activities are recorded and appraised. In the third part a list of indices rounds out the picture of community health by briefly summarizing conditions of living, health status of the population and organized health services.

Brief History of Nursing

By Minnie Goodnow, R.N. W. B. Saunders Company.

This book (not to be confused with the author's *Outline of Nursing History*) is an entirely new presentation planned for students in schools where only a limited course is given in nursing history. Each chapter is presented as a unit in order to permit rearrangement or omission as the teacher may elect. Simplified Review Questions are given at the end of the book.

Essentials of Pathology

By Lawrence W. Smith and Edwin S. Gault. D. Appleton-Century Company.

Presents details of pathology necessary for understanding the nature of organic disease. These directly refer to photographs and photomicrographs of diseased tissues. Case records are combined.

Student learns to coördinate his theoretical knowledge with actual clinical problems.

Exercise and Like It

By Dudley B. Reed, Whittlesey House Health Series. McGraw-Hill.

A vigorously written, discursive, infectious book on the value of exercises and sports and how to undertake them. Includes chapters on the physiology needed to explain the uses of exercises, also on choosing a recreation, and "when and how much."

Fifty Years a Country Doctor

By William N. Macartney, M.D. E. P. Dutton & Company. $3.50. (March 10.)

A wise, bluff old medico who is ac-

customed to speaking his mind writes a remarkable account of a life-time of work in northern New York in a community comprised of Indians on a reservation, French Canadian habitants, farmers, and other small-town folk.

Food Control: Public Health Aspects

By James H. Shrader, Ph.D., D.P.H., Formerly Director of Scaltest System Laboratories. William Wood & Company. (In preparation.)

A comprehensive work on methods used in food production and control to safeguard public health. Covers methods of processing, microbiological and chemical methods of food analysis used in control of methods of preparation and in inspection by public health officials. Supplies a long-felt need for a comprehensive reference and text on this subject. Suitable for text in schools of public health, for commercial and public health laboratories, for food inspectors.

Fundamentals of Internal Medicine

By Wallace M. Yater. D. Appleton-Century Company.

Concise descriptions of internal diseases coördinated with the underlying pathology and the altered physiology giving the student sufficient material for understanding the fundamental basis of the symptoms and, therefore, a rational background for diagnosis.

This book presents the minimum amount of knowledge the practitioner and student must have at his command to diagnose and treat disease rationally.

Handbook of Social Hygiene

By W. Bayard Long, M.D., and Jacob A. Goldberg, Ph.D. Lea & Febiger. $4.00.

Produced in contributions by 17 recognized authorities, including besides famous specialists, a hospital director, a director of nursing, and several executive officers of public health associations. It is not only a book for the physician but for the public health worker, the social worker, nurses, and others enlisted in the current campaign for social hygiene. This book furnishes exact and scientific knowledge and tells them everything that they need to know.

Health and a Day

By Lord Horder, K.C.V.O., M.D., B.Sc., F.R.C.P. G. P. Putnam's Sons. 213 pp. $2.50.

Lord Horder writes understandingly of the strain of modern civilization; of the doctor as humanist; of the doctor and public happiness; of old diseases and new; of the duty of the physician to look at his patient as a personality—a complete entity—and not as a mere bundle of physiological and pathological processes.

How to Live

By Irving Fisher, LL.D., and Haven Emerson, M.D. Funk & Wagnalls Company. 20th edition completely revised and rewritten. $2.00.

Since its publication in 1915, *How to Live* has had a circulation of almost half a million copies. It is the official handbook of the Life Extension Institute, and a textbook in many colleges and schools.

It is written in simple, non-technical language for the general public, giving the findings of the foremost authorities on how to live healthfully in relation to food, drink, clothing, housing, exercise, work, play, rest, sleep, and other related aspects of human life.

I Swear by Apollo (*A Life of Medical Adventure*)

By William E. Aughinbaugh, M.D. Farrar & Rinehart, Inc. $3.00. (April.)

From boyhood in a small Virginia village after the Civil War and medical student days in Washington, up through

the years of disasters, plagues, floods, panics, to the present day of specialization and knowledge, Dr. Aughinbaugh tells his life story. His work led him to the farthest parts of the world. He was among the first to arrive at the scene of the annihilation of St. Pierre by the eruption of Mt. Pelee—he fought plague in the Red Sea on a pilgrim packed ship, and he studied the ravages of leprosy from Venezuela to China.

Medical Writing: *Its Art and Technic*

By Morris Fishbein, M.D. American Medical Association. (1938.)

This book represents the gradual evolution of the pamphlets entitled, "Suggestions to Medical Authors," long published by the American Medical Association Press. The various chapters concern the preparation of the manuscript, the technic of medical writing, the development of charts, tables and illustrations, the proper use of words, the selection of a title, the writing of a case report, and many similar topics.

Medical Information for Social Workers

Edited by William M. Champion, M.D., School of Applied Social Sciences, Western Reserve University, Cleveland. William Wood & Company. About 400 pages. Price, about $3.50. (In preparation.)

A concise book of medical information for public health and all social workers who must possess some understanding of medical matters. Based on a course of lectures given at Western Reserve University, it has been extended and written in collaboration with many leaders in the field. Discusses rather fully diseases with social significance such as tuberculosis, and other diseases more briefly.

Mental Hygiene for Nurses

By Elizabeth Lee Vincent of the Merrill-Palmer School. W. B. Saunders Company.

In this new text the author explains the meaning of mental health and its virtues in relation to nursing practice. She applies the principles of mental hygiene to the personal adjustments of the student, to methods of study and to the nursing care of patients.

Pneumonia and Serum Therapy

By Frederick T. Lord, M.D., and Roderick Heffron, M.D. The Commonwealth Fund. $1.00. (March.)

This is a completely revised and enlarged edition of *Lobar Pneumonia and Serum Therapy* published in 1936. The 1938 edition contains important new information on dosage and results for Types I, II, V, VII, VIII, and XIV, discusses the use of rabbit serum, sets forth in detail the organization of a pneumonia control program, and brings up to date essential information pertaining to serum therapy of pneumococcus pneumonia.

Pneumonia, With Special Reference to Pneumococcus Lobar Pneumonia

By Roderick Heffron, M.D. The Commonwealth Fund. (In preparation.)

This is an outgrowth of the Pneumonia Study and Service conducted by the Massachusetts Department of Public Health. It is an authenticated account of pneumonia, including the causative organisms, epidemiology, immunity, pathogenesis, measures for prevention, course of the disease, complications and their treatment, diagnosis, prognosis, and treatment.

Psychology Applied to Nursing

By Professor Lawrence A. Averill of the Massachusetts State Teachers College, and Florence C. Kempf, R.N.,

Assistant Principal and Instructor in Psychology at Massachusetts General Hospital Training School for Nurses. W. B. Saunders Company.

This gives to students a complete presentation of the psychological principles which bear on nursing adjustment. The mental hygiene point of view is maintained throughout. The book incorporates the suggestions included in the Curriculum Guide and is aimed at teaching the student to understand herself, and the personalities of others, especially of her patients.

The Adolescent

By Ada Hart Arlitt, Professor and Head of Department of Child Care and Training, School of Household Administration and Graduate School of Arts and Sciences, University of Cincinnati. McGraw-Hill.

Dr. Arlitt gives the modern concise and readable advice on discipline, emotional control, character training, and planning the day for the older child.

The Care of the Infant and the Young Child

By Harry Lowenburg, Sr., M.D., Attending Pediatrician to Mt. Sinai Hospital, Philadelphia General Hospital and to the Skin and Cancer Hospital. With the assistance of John C. Williams, M.D., Assistant Pediatrician to the Germantown Hospital, Philadelphia. Whittlesey House Health Series. McGraw-Hill.

The Devil's Candle

By Ruth De Forest Lamb, author of American Chamber of Horrors, and Chief Educational Officer of the U. S. Food and Drug Administration. Farrar & Rinehart, Inc. $2.50. (June.)

A constructive and informative book on both the history and the current methods in the protection of the public in the matter of the regulation of foods and drugs.

The Etiology of Trachoma

By Louis A. Julianelle, Ph.D. The Commonwealth Fund. (In preparation.)

Dr. Julianelle reviews the various studies of the etiology of trachoma and correlates with them the findings of the Trachoma Commission established at Washington University several years ago. Some of the observations made at this laboratory have been reported in medical journals, but in this monography they are brought together for the first time and related to existing literature on the subject.

The Truth About Childbirth

By Anthony M. Ludovici. E. P. Dutton & Company. $2.50. (April.)

The author advances the daring claim that normal childbirth should not be merely painless and uneventful, but actually a fairly safe and pleasurable function. He describes in detail and with scientific documentation the vicious life-habits, the mistaken policies, which today make normal childbirth an impossibility.

Water Supply and Sewerage

By E. W. Steel, Professor of Municipal and Sanitary Engineering, Agricultural and Mechanical College of Texas. McGraw-Hill.

An authoritative, up-to-date treatment combining the subject of water supply, water purification, sewerage and sewage disposal.

Ways to Community Health Education

By Ira V. Hiscock, with the assistance of Mary P. Connolly, Marjorie Delavan, Raymond S. Patterson, Ph.D., and William H. F. Warthen, M.D. The Commonwealth Fund. (In preparation.)

Technics and devices for community health education which have been found practicable by various health de-

partments and voluntary health agencies. The first section considers the methods and vehicles of education in detail with the proper field use of each, while the second section sets forth how these may be correlated to provide an effective health education program for a particular field. Technics to inform specific groups of personal and public health matters and to build public opinion in favor of health services are considered. The book is profusely illustrated.

National Health Survey: Preliminary Reports—*Washington: National Institute of Health, and U. S. Public Health Service*, 1937.

These bulletins are the first of a series of preliminary reports on the results of a nation-wide survey of the extent of illness and the receipt of medical care in relation to a variety of social and economic factors. The work was carried out by the U. S. Public Health Service (Division of Public Health Methods) and the National Institute of Health with the aid of grants from the WPA. The data were collected during the fall and winter months of 1935 to 1936.

The purpose of the investigation was to determine the incidence of disabling illness and accident, and their duration, the prevalence and type of chronic disease and defect, the amount of medical care received, and the relation of these factors to such other factors as income, relief status, employment status, occupation, housing conditions, education, sex, and color.

The reports are based on schedules taken in 84 cities for 740,000 families with 2,660,000 individuals, a number roughly equivalent to 3.7 per cent of the total urban population in 1930. In addition, 36,000 families with 140,000 persons were surveyed in 23 rural counties. The population sample was selected with the greatest care and in such a way that it might fairly reflect the conditions prevailing in all parts of the United States.

The results of this investigation give us, without doubt, the best picture we have had up to date of the health conditions prevailing in all parts of the country. If it may be assumed that the sample population studied is typical of the entire population, the health status of the American people may be described in a few brief statements.

1. Six million people, 1 out of 20, are unable to work or attend school on each day during the winter months due to illness, injury, or physical impairment. Old people and children are ill more frequently than youth and middle age.

2. Of the 6 million disabled, the acute respiratory diseases account for approximately 1½ million, one-fourth of the total. Chronic diseases are responsible for 2½ million (more than 40 per cent); injuries due to accident for ½ million; acute infectious diseases (mostly children) for 250,000; and acute diseases of the stomach and liver, and appendicitis for about 250,000.

3. During the period of a year 172 out of each 1,000 persons are disabled by illness or accident for 1 week or more. Applied to the whole population this gives 22 million cases of illness disabling for a week or more.

4. In the country as a whole about ¼ billion days are lost annually from work or school through illness. On the average this represents 10 days of disability for each person. The average duration of disability for each person per case of illness was 57 days. For those under 15 it was 26, while for those over 65 it was 123. Chronic illness counted for 138 days of disability per case.

5. There is a very significant relation between income status and the frequency of illness. The frequency rate was one and a half times as great for families on relief as it was for families with incomes over $3,000. The frequency rate declined steadily for successively higher income groups. The greatest differences between income groups appears in the frequency of chronic illness.

6. Disabling illness is also more severe among those of low than of higher economic status. The average case of illness among those on relief was of 63 per cent longer duration than among those with incomes of $3,000 and over. The greater frequency plus the greater severity of illness in relief families

gives rise to a volume of disability that is 3 times as great as in families of higher income status. The relation between illness and low income is partially revealed in the fact that 5.2 per cent of the heads of relief families reported themselves as not seeking work due to illness. Only 0.4 per cent of family heads in the $3,000 class were so reported. The extremely high severity of chronic illness in the low income classes is particularly notable. The relief group showed a volume of disability twice that in the highest income group.

7. Families of low income status receive less care by physicians than do those with higher incomes. Thirty per cent of the cases of disabling illness were unattended by physicians in relief families. This figure declined at each income level. In families with incomes over $3,000 it was 17 per cent. Measured in terms of the number of physicians' visits per case attended there were considerable differences in the volume of care enjoyed at each income level.

8. About 1 per cent of the relief families and 2.5 per cent of non-relief families with incomes less than $2,000 received the services of a private duty nurse. The figure for those with incomes over $3,000 was 12 per cent. On the other hand, low income families made considerably more use of the public health nurse. It is doubtful, however, if the public health nurse is an adequate substitute for the private nurse in cases of serious illness.

9. Cases of disabling illness were hospitalized more frequently in relief families than they were among non-relief families of limited incomes (less than $1,000). Families with incomes of $3,000 and over enjoyed hospital care more frequently, however, than did relief families. Preliminary analysis, however, seems to indicate that the greater volume of hospital care for relief families prevails only in the larger cities. In the small cities (less than 25,000) relief families received half the volume of hospital care enjoyed by families in the $3,000 and over class. This fact reflects the greater inadequacy of free hospital service in the smaller cities.

This study deserves the wide interest which it has already attracted from the press and current periodicals. Its results confirm the picture of the nation's health which we have been getting from earlier but more fragmentary and local studies. That there exists an enormous volume of preventable disease, and that present methods and facilities for meeting the problem are inadequate, seems an inescapable conclusion. No more convincing argument can be presented for the inclusion in our system of social security of an adequate program for health protection than the results of this investigation. Complete reports on the study will be awaited by all those interested in the problem of providing adequate protection against the hazard of illness. C. T. PIHLBLAD

Getting Ready To Be a Mother—*By Carolyn Conant Van Blarcom, R.N. (3rd ed.) New York: Macmillan,* 1937. 305 pp. Price, $2.00.

The third edition of Miss Blarcom's handy manual on prenatal and early infant care follows closely in content and format to the previous editions. However, there has been some rearrangement of the text and considerable new material has been added especially in the way of illustrations and chapters on habit formation. The fact that a new edition of this practical guide has appeared emphasizes the widening recognition of the importance of prenatal care and the desire on the part of parents to obtain the latest and best information available on this subject.

RICHARD A. BOLT

Les Microbes Anaérobies—*By M. Weinberg, R. Nativelle, and A. R. Prévot. Paris: Masson et Cie,* 1937.

No one will doubt that Weinberg and his associates have earned the right to the authorship of this textbook through their assiduous devotion to this group during two decades. The opportunity to review it is especially interesting because I had the good fortune to see, and in a few cases help correct and revise, the galley proofs in Paris in 1936.

Les Microbes Anaérobies is the most complete and accurate treatise upon the anaerobic bacteria that has ever

appeared in print. It is in a single volume of 7 parts, dealing successively (1) with the early discoveries of anaerobic bacteria by Pasteur and the subsequent developments of various technics for studying and cultivating them up to the present; (2) with the pathogenic Gram-positive anaerobic bacilli with central or subterminal spores among which are many of the important disease producing anaerobic microörganisms of man and animals; (3) with the anaerobic bacilli which form terminal spores, among which are *Bacillus tetani, Bacillus carnis,* some species not so clearly defined as pathogens, and many which are non-pathogenic; (4) this describes many species of Gram-positive anaerobic bacteria of little or no pathogenic significance. This brings together many supposed species whose present classification is questionable owing to the lack of adequate and critical descriptions, such as "*B. ramosus,*" "*B. bifidus,*" "*B. lymphophilus,*" the "diphtheroid" anaerobes, the chromogenic anaerobes, and the "Streptobacilles," "Leptothrix," and "Streptothrix"; (5) this covers various Gram-negative anaerobic bacteria, "Batonnets," "Fusiformes," again "Leptothrix," "Vibrions et Spirilles," "Bacteroides," and other forms described inadequately; (6) devoted to anaerobic bacilli capable of fermenting complex carbohydrates such as cellulose, starch, and other polysaccharides; and (7) to the anaerobic cocci for whose detailed study Prévot has made himself mostly responsible.

There are appendices on the buccal spirochetes and the broncho-pulmonary anaerobes, on anaerobic bacteria overlooked until after the type was set, and on habitat, as well as a fairly complete bibliography.

The work is fairly well illustrated; many of the photographs of bacteria stained by Levinson to show flagella are really fine. The paper is better than one finds in some French publications and the printing is good.

It lacks a well organized index and the attempted classification as indicated by the various parts is illogical. One might wish also for a more critical attitude in certain sections, but it seems clear that it was their intent mainly to record in one volume as complete a summary of the literature on the anaerobic bacteria as possible, not to settle the multitudinous problems of identity of species which exist; to compile principally, and to evaluate only where clear-cut indications permitted. In this they have succeeded eminently. *Les Microbes Anaérobies* fills a real need in the field of anaerobic bacteriology and ably supplements and supplants its excellent predecessor, *La Gangrene Gazeuse,* published by Weinberg and Seguin 20 years ago.

IVAN C. HALL

Twenty-five Years of Health Progress—*By Louis I. Dublin and Alfred J. Lotka. New York: Metropolitan Life Insurance Co.,* 1937. 611 p.

When, in 1911, the Metropolitan Life Insurance Company inaugurated its health and welfare program, it placed in charge of the statistical investigations a man whose vision was not confined to the problems and requirements of the day. To say that the development of the philosophy and the perfection of the practice of vital statistics in this country in the last quarter of a century was, in an important degree, determined by the work of Dublin and his gifted associates, is stating a fact of general knowledge.

This work by Dublin and Lotka summarizes and evaluates "Twenty-Five Years of Health Progress" in terms of the experience of the Metropolitan Life Insurance Company and the available comparable material for the general population of the country. The out-

standing qualities are the integrity of statement, logic of deduction, and, what is so often lacking in American scientific work, good literary style. It is particularly gratifying to find few long range prophecies. Reasonably accurate quantitative measurements of morbidity and mortality became possible only recently. Although many diseases have exhibited sustained downward trends, in only very few—smallpox, typhoid fever, diphtheria—were there unquestioned cause-effect consequences. The mortality from scarlet fever, for example, has moved downward almost as rapidly as that from diphtheria. Here one might be tempted to attribute the reduction to public health activities, but the authors, with admirable reserve, merely state the hypothesis "that the causative organisms of the disease have exhibited a diminished virulence in recent years . . . and that we have no assurance that there will not be a reversion to the more virulent type." Similarly, in discussing the downward trend from measles, the authors find it "difficult to account for the marked decline in mortality."

The three introductory chapters: "An Era of Health Progress," "The General Mortality from All Causes," and "The Trend of Longevity through a Quarter Century," form a concentrated but very readable and ample introduction to the detailed discussion of the specific mortality by cause, in which individual chapters are devoted to tuberculosis, influenza and pneumonia, cancer, diabetes, and diseases of the puerperal state. The principal communicable diseases of childhood and the principal cardiovascular-renal diseases are considered as a group as well as individually. A chapter is given to "miscellaneous diseases of special interest," such as typhoid fever, syphilis, pernicious anemia, while the final chapter contains a comprehensive discussion of the external causes of death —suicide, homicide, and accidents.

The several chapters could be taken as excellent examples of sound objective statistical writing. The treatment of the complex influenza-pneumonia group is particularly excellent. An example of cogent reasoning is the discussion of the marked decline in the death rate from tuberculosis, heart disease, cerebral hemorrhage, and chronic nephritis which followed the influenza pandemic of 1918–1919. "There is," the authors say, "one seemingly obvious explanation," but they do not accept it because

> . . . it is not borne out by the facts. It has often been supposed that this decline in death rates was merely a result of the wiping out by the epidemic, in one fell swoop, of a large number of physically impaired persons . . . This supposition . . . is not in harmony with the facts . . . For (1) the death rate from all causes at the older ages did not increase in 1918 as it would have done if there had been a weeding-out process of impaired persons at these ages, (2) the pandemic was notable for its high prevalence among younger people . . . Furthermore, the view that the pandemic was selective in its action against physically inferior persons is contradicted by the fact that there was high fatality among vigorous young men.

The authors then proceed to formulate several likely explanations, stressing, however, that they are all hypothetical.

An appendix to the book gives detailed statistical tables showing the distribution according to sex, race, age, and cause of the more than three million deaths recorded in 1911–1935 among the industrial policy holders of the Metropolitan Life Insurance Company.

For evident reasons, this book cannot become a "best seller," but it should, and one hopes will, be one of the most frequently consulted works in public health literature.

Copies of the book are available to a limited number of libraries and professionally interested people.

J. V. DEPORTE

The Psychology of Eating—*By Lewis R. Wolberg, M.D. New York: McBride,* 1936. 321 pp. Price, $3.00.

This omnibus of eating traces the dietary lore from the carnivorous caveman down through the ages to the modern science so venerated by the stream-lined sylphs. On the way it passes through the facts, fads, and fancies which have had their day or which, persisting in part, may be recognized in current practice. From its title the book might be expected to explain why we eat as we do, or even to psychoanalyze aberrant dietary lives. But this theme is abandoned before it is fully developed. The author has used more psychology in writing the book than he has written into it.

While the book spreads over the entire domain of diet and nutrition, it is essentially dedicated to routing obesity. For those on the heavy side, every conceivable psychological stratagem would seem to have been included to meet their every type of resistance to dietary reform. The appeal to instincts, the stir of emotions, and the challenge to reason, all are here. It should reduce the inveterate gourmet or gelatinous backslider to a penitent mood. Thereupon it leads into the road to rehabilitation with its signposts of food values and sample menus.

The book covers much territory; therefore some of it must necessarily be superficial. Then too, its tone has an unevenness which can scarcely be escaped in such a panoramic treatment, for all parts of diet and nutrition do not lend themselves equally well to popularization. But its most noticeable blemishes are a certain lack of coherence at times, and an overindulgence in repetition.

On the whole, the style is agreeable and entertaining. In its exposition of dietetic principles, the book is sound; except for a few inaccuracies, it is likewise faithful to the science of nutrition. But by all odds the book strikes its highest level in its scattered paragraphs on the psychological basis for food habits, which unfortunately were all too few. If the book's scope had been narrowed, and the reiterations deleted, the space could have been well used toward achieving what the book purports to be—an exposé of the psychology of eating. This variance need not discount what it actually does in its capable and conservative approach to a major dietary problem, obesity. To the diet conscious—and who is not—and particularly to those who are or would be watchful of the waistline, the book offers advice and help as practical yet as palatable as its menus.

H. D. KRUSE

The Management of the Pneumonias—*By J. G. M. Bullowa. New York: Oxford University Press,* 1937. 508 pp. Price, $8.50.

Written out of a vastness of experience that alone must command respect, this book covers in a thoroughly comprehensive manner the entire subject of acute pneumonia. The author's experiences over a period of nearly 12 years, as chief of one of the largest pneumonia services in existence, are recorded in great detail with numerous illustrative charts and diagrams. Particularly valuable are Dr. Bullowa's records of age, anatomical form and bacteriology of some 6,000 cases, and his presentation of data concerning the use of antipneumococcus sera, especially in the treatment of the so-called higher types.

If the book deserves any criticism, it must be of the author's tendency to mix statements of soundly established fact with statements of theory without clear distinction. To the reader untrained in the field of pneumonia research, such usage will be found confusing.

The charts and diagrams are meaty in the extreme, but to our point of view

many of them are overly complicated and demanding of too much study.

Because of the wealth of experience it presents, this book must be considered outstanding among the monographs on pneumonia of the present day. It is probably too intricate for the use of the general practitioner, but it cannot be neglected by anyone presuming to a special knowledge of pneumonia. It should be on the reference shelf of every medical library.

EDWARD S. ROGERS

Practical Bacteriology, Haematology and Animal Parasitology—*By E. R. Stitt, M.D., Paul W. Clough, M.D., and Mildred C. Clough. Philadelphia: Blakiston,* 1938. 961 pp. Price, $7.00.

It is a work of supererogation to criticise or to praise this book, which has reached its 9th edition. Years ago an English critic said that if a scientist interested in these lines were cast on a desert island and were limited to one book, Stitt is the one which he would select. This opinion, in one form or the other, the reviewer has heard echoed a hundred times, and it is his own opinion also. The preface states that the needs of the man in tropical or remote fields have been borne in mind as well as those who have access to well equipped libraries, and this is true.

The present edition appears in a new format, with two junior editors. It has been considerably revised. The chapter on Filtrable Viruses is practically new. A new chapter on the fungi has been added. The chapter on Immunity and Hypersensitiveness, especially the part dealing with allergy, has been largely rewritten. The greatest revision is found in the part devoted to hematology. Instead of the 67 pages on hematology and the 23 on chemical examinations of the blood, there are now respectively 95 and 56 pages. Some colored plates have been added in this section.

It is hard to praise this book too highly. The present edition will hold its place with those which have preceded it, as being perhaps the most complete and practical book on the subjects treated on the market. The printing and make-up are good and the illustrations excellent.

MAZŸCK P. RAVENEL

Dr. Nash's Cookery Book—*By Elwin H. T. Nash, M.R.C.S., M.R.C.P., Medical Officer of Health, Hounslow, England. London: Simpkin, Marshall, Ltd.,* 1937. 183 pp. Price, $.50.

This book describes a research which was undertaken to see how far it was possible to provide a scientifically adequate diet with the requisite amount of first class protein by utilizing the cheap cuts of meat which are seldom used but which from the nutritional standpoint are good. The work was made possible by a grant of £500 from the Carnegie Trustees. Dr. Nash had a staff headed by Miss Hook, a nutrition worker of long experience who had studied dietetics in America as well as in England. He had one other well trained person and his own cook who had been studying Professor Mottram's writings. He personally sampled every dish that was prepared in addition to having a man and a woman from among the unemployed to pass judgment on them. He recognized that monotony of diet must be avoided and that to be useful the dishes must be palatable as well as nutritious.

It is astonishing to note that throughout his study the average price paid for beef was only 6d. per pound and for mutton only 3d. per pound. Most of the utensils used were bought at what we know in this country as 5 and 10 cent stores.

The author lays stress on the utilization of what are usually waste prod-

ucts: bacon scraps left after slicing, biscuit dust accumulating at the bottoms of tins, etc. He mentions one store in his district in which this averages 28 pounds per week, and points out its high nutritive value on account of the fat, sugar, carbohydrates, and proteins which it contains.

There are some 12 pages devoted to General Principles, while the rest of the book is made up of recipes. We believe this is an unusually useful book. With some change of nomenclature, since the English use terms not generally understood in this country, the book would seem to have a place in providing a wholesome dietary for those who must economize strictly on food bills.

MAZŸCK P. RAVENEL

BOOKS RECEIVED

PULMONARY TUBERCULOSIS IN PRACTICE. A MODERN CONCEPTION. By R. C. Wingfield. Baltimore: Wood, 1937. 122 pp. Price, $2.50.

POISONS, POTIONS AND PROFITS. The Antidote to Radio Advertising. By Peter Morell. New York: Knight Publishers, 1937. 292 pp. Price, $2.00.

HANDBOOK ON SOCIAL HYGIENE. Edited by W. Bayard Long and Jacob A. Goldberg. Philadelphia: Lea & Febiger, 1938. 442 pp. Price, $4.00.

THE SELF YOU HAVE TO LIVE WITH By Winfred Rhoades. Philadelphia: Lippincott, 1938. 182 pp. Price, $1.75.

HOW TO BE A CONVINCING TALKER. By J. George Frederick. New York: Business Bourse, 1937. 131 pp. Price, 2 Vols., $3.50.

STANDARD BUSINESS ETIQUETTE. By J. George Frederick. New York: Business Bourse, 1937. 188 pp. Price, $1.75.

YOUR HEALTH. (List of Radio Programs.) Compiled by W. W. Bauer and P. A. Teschner. Richmond: Johnson Publishing Co., 1937. Booklet. Price, $.24.

THE PUBLIC ASSISTANCE WORKER. Editor, Russell H. Kurtz. New York: Russell Sage, 1938. 224 pp. Price, $1.00.

A BIOLOGICAL APPROACH TO THE PROBLEMS OF ABNORMAL BEHAVIOR. By Milton Harrington. New York: The Science Press, 1938. 459 pp. Price, $4.00.

THIRD SYMPOSIUM ON SILICOSIS. Edited by B. E. Kuechle. Wassau, Wis.: Employers Mutuals, 1937. 266 pp. Price, $3.00.

STEP BY STEP IN SEX EDUCATION. By Edith Hale Swift. New York: Macmillan, 1938. 207 pp. Price, $2.00.

MAN AGAINST HIMSELF. By Karl A. Menninger. New York: Harcourt Brace, 1938. 485 pp. Price, $3.75.

PHYSIOLOGICAL AND PSYCHOLOGICAL EFFECTS OF ALCOHOL AND THEIR SOCIAL CONSEQUENCES. By Mary Lewis Reed. New York: Lakeside Publishing Co., 1937. 46 pp. Price, $.15; 100, $10.00; 500, $.07½ each.

PNEUMONIA AND SERUM THERAPY. Rev. ed. By Frederick T. Lord and Roderick Heffron. New York: Commonwealth Fund, 1938. 148 pp. Price, $1.00.

LET'S GROW. By Mary L. Hahn and Charles-Edward Amory Winslow. New York: Merrill, 1938. 186 pp. Price, $.72.

LET'S STAY WELL. By Mary L. Hahn and Charles-Edward Amory Winslow. New York: Merrill, 1938. 184 pp. Price, $.72.

LABORATORY MANUAL. Methods of Analysis for the Butter Industry. Edited by J. C. Fridenberg. Chicago: American Butter Institute, 1937. 48 pp.

APES, MEN & MORONS. By Earnest A. Hooton. New York: Putnam. 307 pp. Price, $3.00.

MENTAL HYGIENE FOR NURSES. By Elizabeth Lee Vincent. Philadelphia: Saunders, 1938. 263 pp. Price, $2.00.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Attacking a Ten Billion Dollar Problem—Presenting the need for a national health program, this committee report comments upon the morbidity findings of the recent nation-wide sampling, points out the need for better maternal and child health services, more comprehensive public health administration, a better distribution of medical personnel and institutions, more public health nurses, ending with an emphatic plea for more hospitals in rural centers.

ANON. A National Health Program and Some Proposals Toward Its Design. J.A.M.A. 110. 9:656 (Feb. 26), 1938.

Supply and Demand for Medical Services—Suggestions for methods of determining in each county the treatment resources for the care of the medically indigent, and the number of families needing, but lacking medical services.

ANON. Outline for Proposed Plan of Study of Medical Care. J.A.M.A. 110, 7:77B (Feb. 12), 1938.

For More Accurate Mortality Reporting — Recommendations are made by the Committee on the Accuracy of Certified Causes of Death of the A.P.H.A. for the revision of the International List designed to omit inaccurate and obsolete terms and to meet needs of better analysis of certain diseases and conditions.

ANON. The Accuracy of Certified Causes of Death. Pub. Health Rep. 53, 5:172 (Feb. 4), 1938.

Plans for Better Maternal Hygiene—Reporting the findings of the Conference on Better Care for Mothers and Babies of the Children's Bureau, which are, or should be, well known to every health worker, mention is made of the two outstanding and equally well organized needs, better obstetrical training for physicians and nurses, and improvement of public health services.

AMIDON, B. Women and Children Last. Survey. 74, 2:38 (Feb.), 1938.

Laboratory Diagnosis of Measles—In blood smears from measles cases inclusion bodies may be demonstrated in the white corpuscles, and these bodies may be grown in tissue cultures of blood and of specimens taken in the throat. These two papers will be of interest to other health workers, as well as to pathologists, because of the wide publicity given to the diagnostic possibilities of these and related studies.

BROADHURST, J., *et al.* Measles Inclusion Bodies in Blood and Tissue Cultures and Tissue Cultures of Human Throat Inclusion Bodies. J. Infect. Dis. 62, 1:6 (Jan.-Feb.), 1938.

Immunizing Babies — Diphtheria toxoid given at 6 months is as effective as that given at 1 year. Three doses of toxoid amounting to 2 c.c. is as protective as a larger amount, and the intervals between doses are not important.

BENJAMIN, B., *et al.* Results of Schick Test in Five Thousand One Hundred Ninety-five Children Given Injections of Diphtheria Toxoid. Am. J. Dis. Child. 55, 1:51 (Jan.), 1938.

Controlling Minor Contagious Diseases—Something about lice, scabies, ringworm, impetigo, and the other items that serve to make the school nurse's life such a merry one.

In 1914, skin diseases were found 42,000 times in New York school children; in 1936, with a much larger enrollment, only 11,000 cases were discovered. A much greater decrease in pediculosis was found, too.

COHEN, S. R. Common Skin Diseases in the Schools. Pub. Health Nurs. 30, 2:120 (Feb.), 1938.

Sewage and Garbage Disposal—Though its subject be far removed from the routine duties and interests of most health workers, this paper on sewage and garbage is so ably written, and quite strangely—considering the topics—often amusing and entertaining, that it is highly recommended to all. A little knowledge of the general subject will hurt none of us.

COHN, M. M. The Disposal of Sewage and Garbage—Related Municipal Functions. Sewage Works J. 10, 1:81 (Jan.), 1938.

Life on the Ohio—How 5 million downstream residents drink the insufficiently diluted sewage of 2 million Pittsburghers is graphically told. Acid from mine drainage apparently helps to make the sewage a little less offensive, but the cities below Pittsburgh add their sewage to the mess without benefit of additional mine acids.

CROHURST, H. R. The Pollution Problem in the Ohio River Drainage Basin. Pub. Health Rep. 53, 4:121 (Jan. 28), 1938.

Debunking Malnutrition — Physicians differ so greatly in their judgment of nutritional status of children made in routine examinations that such findings are of limited value in determining administrative policies or estimates of malnutrition. Programs to correct faulty habits rather than physical examination campaigns will prove of greater usefulness until valid methods of determining nutritional status are perfected.

DERRYBERRY, M. Reliability of Medical Judgments on Malnutrition. Pub. Health Rep. 53, 7:263 (Feb. 18), 1938.

Advice for Epidemiologists — If repeated skin tests for susceptibility to scarlet fever are to be made on the same person, the previous sites should be avoided, for local immunity, as distinguished from general immunity, may be produced by intradermal injections.

DICK, G. F., and DICK, G. H. Local Immunity to Scarlet Fever. J. Infect. Dis. 62, 1:83 (Jan.-Feb.), 1938.

Sobering Statistics About the Curability of Active Tuberculosis—Although the incidence and the mortality rate of tuberculosis have declined, there has been no appreciable change in the ratio of deaths to reported cases in the past 20 years. Sanatorium treatment seems to have had but little effect upon case fatality rates even though segregation of cases has been a factor in limiting the spread of infection.

DROLET, G. J. Present Trend of Case Fatality Rates in Tuberculosis. Am. Rev. Tuberc. 37, 2:125 (Feb.), 1938.

All about Vitamins—Introducing an extended series of articles on the vitamins by acknowledged authorities, this paper wisely points out the many things vitamin products will not do, as well as their value in nutrition. The succeeding papers, which promise to be of great value to the health worker who is at all concerned with nutrition, will not be mentioned individually here.

FISHBEIN, M. New Series of Articles on Vitamins. Introduction. J.A.M.A. 110, 8:577 (Feb. 19), 1938.

Saratoga, *et al.* Nota Bene—Evidently British health authorities are boosting the spa in a big way, for here are a half dozen papers on the watering place as an aid to health promotion. As the United States is plentifully supplied with such institutions both inland and on three seaboards, it is to be wondered at that American health

officials have not been called upon to come to their aid too.

HORDER, *et al.* The Spa as a National Asset in the Maintenance of Physical Fitness. J. Roy. Inst. Pub. Health & Hyg. 1, 5:274 (Feb.), 1938.

Active Immunization with Meningococcus Toxin — Experience in Missouri CCC Camps with meningococcus toxin used as a prophylactic leads the authors to urge its trial elsewhere. Although 26 cases of epidemic meningitis have occurred in the state camps, none of the immunized group has succumbed.

KUHNS, D. M., *et al.* The Control of Meningococcic Meningitis Epidemics. J.A.M.A. 110, 7:484 (Feb. 12), 1938.

A Shoe to Fit Many a Foot—Brief but brilliant, this discussion of selling public interest in public health administration and health practice should be on everyone's "must" list. The last paragraph might well be displayed on every local health department bulletin board.

MARQUETTE, B. Public Relations for Public Health. Health Officer. 2, 9:418 (Jan.), 1938.

Preventing Deformities in Polio—From Australia comes word that our orthodox methods of treating poliomyelitis are wrong, for complete rest induces atrophic changes. In the method proposed, passive exercise of affected limbs is carried on even during the pyrexial stage. Local heat is applied, and in a bath, hot and cold sprays are used. The scheme is being tested in England.

MILLS, F. H. Treatment of Acute Poliomyelitis. Brit. M. J. Jan. 22, 1938, p. 168.

Motes in Neighbor's Eyes—For those who enjoy a secret sense of superiority, this article about British milk supplies will prove interesting and gratifying reading. It seems that milk producers are grossly underpaid, that only a tiny part of the country's herds are tuberculin tested, and that compulsory pasteurization is still stoutly resisted. As so large a proportion of market milk samples contain tubercle bacilli, health officials cannot but warn the public, and hence the average per capita consumption, which lies between ⅓ and ½ pint per day, is not likely soon to be increased.

PRIESTLY, H. The Future of the Milk Supply. J. Roy. San. Inst. 58, 8:522 (Feb.), 1938.

Serum Treatment and Bedside Nursing—Stressing the importance of adequate nursing care in pneumonia, this paper is a useful addition to the recent literature devoting so much space to Neufeld typing and serum treatment of certain types of pneumococcus pneumonia.

ROGERS, E. S., and MACCHESNEY, E. H. Public Health Nursing Aspects of Pneumonia Control. Pub. Health Nurs. 30, 2:74 (Feb.), 1938.

How to Judge Malnutrition and What To Do about It—Here is something to announce to mothers clubs, parent-teacher associations, etc., when it is desirable to create a sensation. The writer, who is an authority, holds that the child who has a long morning school session from 8 to 1 needs a mid-morning lunch, but the practice of giving milk then is unscientific and often does more harm than good. The child who has his luncheon at 12 should have something to eat after school. When he should have milk, and a great deal more useful advice, will be found in the article.

SMITH, C. H. Malnutrition in Childhood. Prev. Med. 7, 11:257 (Feb.), 1938.

Social Hygiene's Main-Spring—Biographical material about William F. Snow, contributed by a large group of his admirers.

Souvenir Number. J. Social Hyg. 23, 9:473 (Dec.), 1937.

ASSOCIATION NEWS

SIXTY-SEVENTH ANNUAL MEETING
Kansas City, Missouri
October 25–28, 1938
HEADQUARTERS—MUEHLEBACH HOTEL

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Food and Nutrition Section

William M. Hale, M.D., Food & Drug Admr., Dept. of Agriculture, Washington, D. C., Medical Officer
William S. Fultz, County Court House, Olympia, Wash., Sanitarian, Thurston-Mason-Olympia Health District
Stewart Slater, 89–69–215 St., Queens Village, L. I., N. Y., Inspector of Food, New York City Dept. of Health

Child Hygiene Section

Frank P. Bertram, D.D.S., State Dept. of Health, Oklahoma City, Okla., Director, Division of Dental Hygiene
Sonia Cheifetz, M.D., Box 315, Juneau, Alaska, Acting Director of Maternal and Child Health, Territorial Dept. of Health
Grace M. Connors, State Board of Health, Madison, Wis., Maternal and Child Health Demonstration Nurse
Antony Triolo, M.D., 3503 Walbrook Ave., Baltimore, Md., Student at present

Public Health Education Section

Charles M. Bonniwell, Box 443, North Platte, Nebr., Sanitarian, District Health Unit 3
Philip S. Broughton, 1445–44 St. N.W., Washington, D. C., Charge of Office of Public Health Education, U. S. Public Health Service
Mabel M. Brown, R.N., 94 Maple St., Malden, Mass., Director of Health, Reading Public Schools
Ira L. Ferguson, University of Minnesota, Minneapolis, Minn., Graduate Student
Charles A. Freck, 411 N. 10 St., St. Louis, Mo., Executive Secretary, Missouri Tuberculosis Assn.
Mina B. Glasier, M.D., Bloomington, Wis., Member, State Board of Health
Theresa D. McGee, 216 Maryland Ave. N.E., Washington, D. C., Health Secretary, Council of Social Agencies

Public Health Nursing Section

Thelma M. Akana, P. O. Box 2255, Honolulu, T. H., Administrative Assistant, Bureau of Public Health Nursing, Territorial Board of Health
Alice M. Anderson, Box 1245, Fort Peck, Mont., Maternity Demonstration Nurse, State Board of Health
Jennette H. Banker, 3903 Longview Ave., Phoenix, Ariz., Public Health Nurse, Phoenix Union High School
Sarah R. Bernard, 822 N. 5 St., Phoenix, Ariz., Public Health Nurse, Maricopa County
Nettie B. Bubb, 7 Cardinal Ave., Albany, N. Y., Supervising Public Health Nurse, Div. of Public Health Nursing, State Dept. of Health
Frances A. Denham, R.N., Rutherford Health Dept., Murfreesboro, Tenn., Assistant Supervisor, Nursing Division
Veronica Donnelly, 18 Union St., Oneonta, N. Y., District State Supervising Nurse, State Dept. of Health
Jean P. Faeh, R.N., Albany, Ore., Linn County Public Health Nurse
Goldie S. Carlyon, Wickenburg, Ariz., Staff Nurse, County Health Unit
Burdena Hyer, P. O. Box 1101, Douglas, Ariz., School Nurse, Cochise County Health Service
E. Belle Jackson, Butler, Ala., Choctaw County Nurse
Marie A. Jacobson, 1401 Truxillo St., Houston, Tex., Instructor in Public Health Nursing, University of Houston
Zoe LaForge, P. O. Box 2591, Birmingham, Ala., Director, Division of Rural Child Hygiene and Public Health Nursing, Jefferson County Board of Health
Mary W. Matthews, P. O. Box 1656, Miami, Fla., District Supervisor of Nurses, State Board of Health
Alma McClintock, R.N., 6940 Church Ave., Ben Avon, Pa., State Nurse, State Dept. of Health
Eleanor Morgan, 615 W. 150 St., New York, N. Y., Nurse, New York City Dept. of Health
Jeannette E. Potter, 203 N. 26 St., Billings, Mont., Rural Public Health Nurse, State Board of Health
Juanita Ross, 411 Cleveland St., Durham, N. C., Staff Nurse, Dept. of Health
Naomi R. Stevens, Rt. 2, Box 120, Glendale, Ariz., School Nurse
Catherine Webster, 12 Fordonia Bldg., Reno,

Nev., State Advisory Nurse, Division of Maternal and Child Health

Blanche M. Werner, P. O. Box 533, Bisbee, Ariz., Supervising Nurse, Cochise County Health Unit

Epidemiology Section

Albert L. Eisner, M.D., CCC Camp, Rupert, Idaho, Camp Surgeon

Lloyd Florio, M.D., M.P.H., Calhoun County Health Dept., Marshall, Mich., Associate Director

Felipe Lopez Sierra, 615 N. Wolfe St., Baltimore, Md., Student at present

Lester M. Petrie, M.D., 304 Wilton Drive, Decatur, Ga., Assistant Epidemiologist, State Dept. of Public Health

Unaffiliated

Demetrio Castillo, B, M.D., 1621 N. Broadway, Baltimore, Md., Student at present

Alexander A. Robertson, Health Dept., Newton, Mass., Chief Sanitary Officer and Milk Inspector

Oscar D. Schwartz, M.D., 820 N. Broadway, Baltimore, Md., Student

E. Irving Vredenburgh, 502 Pacific Commerce Bldg., Los Angeles, Calif., Assistant National Director, Health and Safety Service, Boy Scouts of America

Ray L. Wheeler, 9 Rose St., Cobleskill, N. Y., New York State School of Agriculture and Home Economics

DECEASED MEMBERS

Edgar R. Hiatt, M.D., Troy, O., Elected Member 1927

O. C. Pickel, Ph.D., Salt Lake City, Utah, Elected Member 1926

William F. Roberts, M.D., St. John, N. B., Canada, Elected Member 1936

John N. Ryan, M.D., Passaic, N. J., Elected Member 1915

ROYAL SANITARY INSTITUTE

THE Royal Sanitary Institute will meet in Portsmouth, England, July 11–16.

The Executive Secretary of the A.P.H.A. desires to know of any Fellows of the Association who plan to be in England during this period.

CONFERENCE ON THE HEMOLYTIC STREPTOCOCCI

THE Coördinating Committee of the Laboratory Section, under the Chairmanship of Lieutenant-Colonel A. Parker Hitchens, recently sponsored a conference to discuss methods for the identification, study, and taxonomy of the hemolytic streptococci. The 19 persons in attendance were representative of organizations and agencies interested in the subject. The discussions are reported in 26 mimeographed pages. A limited number of copies of the report are available upon application to the Executive Office.

PUBLICATIONS NEEDED

THE Association stock of these issues of the *Journal* is almost depleted:

January, 1937
February, 1937
January, 1938

If any members can spare copies of these numbers, the Executive Office will much appreciate it if they will kindly send them to headquarters, at 50 West 50th Street, New York, N. Y.

CORRECTION

ON page 147 of the February *Journal* (Sanitary Aspects of Air Conditioning, by C. P. Yaglou), reference 11 should be "March, 1938," instead of "March, 1937."

EMPLOYMENT SERVICE

The Employment Service will register persons qualified in the public health field without charge. Public health nurses are registered with the Joint Vocational Service, 122 E. 22 Street, New York, N. Y., with which the Association coöperates.

Replies to these advertisements, indicating clearly the key number on the envelope, should be addressed to the American Public Health Association, 50 W. 50 Street, New York, N. Y.

Positions Wanted

HEALTH OFFICERS

Experienced physician, administrator, epidemiologist and teacher, now employed, with C.P.H. from Johns Hopkins, and 14 years' public health background, will consider position. Prefers epidemiology in city or state department. Excellent references. **A355**

Physician, M.D., C.P.H.; 2 years' experience as district health officer; anxious to do venereal disease control work or epidemiology. **A345**

Physician, M.D., Northwestern University; Dr.P.H., Yale; will consider appointment in general administration, infant welfare or epidemiology. **A300**

Physician, M.D., Johns Hopkins; public health course at Michigan; experienced in school and city health work, will consider an administrative post in eastern United States. **A354**

Trained administrator, A.B., M.D., with background of laboratory and research; formerly assistant health commissioner large city. Familiar with all lines. Available short notice. **A295**

Physician, M.D., University of Maryland; C.P.H., Johns Hopkins; broad experience in county public health administration, will consider opening of better class. **A346**

Physician, M.D., Tufts; C.P.H., Johns Hopkins; administrative experience large city health department, will consider position as health officer or epidemiologist. **A362**

CHILD HYGIENE

Experienced physician, M.D. and Ph.D., University of Minnesota; specially qualified in maternal and child hygiene, directing state and local programs; will consider position of better sort. **A238**

Woman physician, M.D., Yale; Dr.P.H., Yale; experienced in pediatrics and administration of state bureau, will consider attractive opening. **A348**

MISCELLANEOUS

Experienced teacher, B.S., Massachusetts Institute of Technology; graduate courses, Harvard School of Public Health; wishes position or will consider statistical or health education opportunity. **M353**

Certified teacher of Hygiene and Health Education; man, age 35, M.S. in Education, also graduate studies at Teachers College, Columbia and Massachusetts Institute of Technology, seeks appointment to teach or supervise effective program in Personal and Community Hygiene. **M360**

Dentist, graduate of Temple University, with excellent postgraduate experience, desires position in administrative aspects of dental hygiene. **M352**

Young man, Sc.D., Johns Hopkins; experience in public health and research bacteriology; will consider position in public health work or university teaching. **L312**

Young man, at present college teacher of hygiene and physical education and experienced in university medical service, desires position as executive in public or private health organization. **M357**

Young woman, Ph.D., Yale University, experienced in the field of bacteriology and immunology, will consider a position in health organization, education or the administrative field. **M324**

Pediatrician: Graduate of Syracuse University; internships and postgraduate work in pediatrics in United States and Europe; teacher in large eastern medical college; author of textbook on infant nutrition; considerable experience in city health department in infant welfare and child health, juvenile tuberculosis, and epidemiology. Will consider position in teaching, or in infant welfare, child health, or other public health work. **M361**

NEWS FROM THE FIELD

ANTI-SYPHILIS COMMITTEE

MORE than 1,200 men and women representing business and the professions are aligned with General John J. Pershing, chairman of the National Anti-Syphilis Committee of the American Social Hygiene Association, in the $500,000 fund campaign for the Association's program against syphilis, especially among youth, and the conditions which favor its spread.

These men and women are serving either on the national committee which numbers 271 or one of the 16 state committees in the 5 areas of the campaign. Through the activity and endorsement of these leaders, General Pershing's committee has been enabled to show a total of almost $150,000 in gifts and pledges.

With several weeks yet remaining for the appeal, indications are that the required sum will be obtained.

INSPECTION OF DIAGNOSTIC LABORATORIES

A PLAN to inspect and appraise the public and private diagnostic laboratories in Illinois has been announced by the State Department of Health. The immediate object is to improve and standardize laboratory tests for syphilis.

Each laboratory that volunteers to participate in the plan will be inspected at intervals by a representative of the department. Assistance will be offered when needed, and standard antigen for making blood tests for syphilis will be provided by the department. Certificates of approval will be issued to each laboratory maintaining the required technical and professional standards and a register of all approved laboratories will be kept. There are about 225 of these laboratories in the state.

THE HENRY ROSE CARTER MEMORIAL LABORATORY

ON February 8, 1938, the Henry Rose Carter Memorial Laboratory was dedicated at Savannah, Georgia, in honor of the late Assistant Surgeon General, Henry Rose Carter (1853–1925), of the United States Public Health Service. The land, building and equipment were made possible through funds authorized by the city administration. Construction was effected through the WPA, according to the plan of the Director, Senior Surgeon T. H. D. Griffitts, who was assisted by Mr. Kinyon, of the City Health Department. The laboratory was presented to the United States Public Health Service and will be used for malarial research.

It is a fitting memorial to one of the world's greatest sanitarians and investigators of malaria and yellow fever, much of whose work may have been forgotten by the present generation.

Summarizing the outstanding contributions of Dr. Carter to public health and sanitation, they are: (1) the determination of the correct incubation period of yellow fever; (2) the determination of the extrinsic incubation of that disease; (3) establishment of its place of origin in Africa; and (4) his introduction of successful malaria control measures in the United States. Many of his papers on malaria control were published in early volumes of the *Southern Medical Journal*.

It is fitting that a testimonial to his achievements should be in the form of a malarial research laboratory, since his views have been accepted internationally and his preventive methods adopted throughout the world. Savannah is to be congratulated upon fostering this institution. Many young

Americans today are ignorant of or may consider lightly the great service which the Army and Navy medical corps have rendered the world in sanitating uninhabitable lands and making them safe for human beings. It is appropriate that it be kept in mind by a tribute of this type to an illustrious name.—*Southern Med. J.*, Mar., 1938.

"COOPERATIVE HEALTH"

COOPERATIVE HEALTH will be the title of a magazine to be launched this spring as the official monthly publication of the Bureau of Coöperative Medicine, Coöperative League of the United States. Farm, labor, medical and social welfare leaders will serve as advisers on the Board of Consultants for the journal.

Michael M. Davis, Ph.D., Chairman of the Committee on Research and Medical Economics, will head the Board. Representatives from the social welfare and medical fields include: Edith M. Gates, National Y.W.C.A. health education secretary, Dr. C. Rufus Rorem, Dr. C.-E. A. Winslow, Dr. Henry Sigerist, Mrs. Miriam Steep, and Carl Malmberg, editor of *Health and Hygiene*, who will act as consulting editor. Editorial policy of the new magazine will be directed toward coordinating the many steps toward coöperative medicine now being taken in this country, according to Martin W. Brown, secretary of the bureau.

PNEUMONIA SERA

ACCORDING to Dr. Edward S. Godfrey, Jr., New York State Commissioner of Health, "unfortunate" and "premature" publicity giving the impression that the use of rabbit sera in the treatment of pneumonia will soon result in the availability of sera highly effective against all of the 30 different types of the disease, is without scientifically accepted supporting evidence.

However, Dr. Godfrey said, it must be understood that his criticism is directed against "premature use of a new product" and not in any way intended to discredit its ultimate usefulness or the present value of antipneumococcus horse sera, now recognized as of great value and, in fact, provided for physicians by the state.

Dr. Godfrey also made public a resolution of the state's advisory committee on pneumonia control, urging against jeopardizing the future of antipneumococcus rabbit serum as a practical method of pneumonia treatment by its "premature generalized use."

CAIRO LEPROSY CONFERENCE

AMONG the distinguished physicians representing the United States in the Fourth International Leprosy Conference in Cairo, Egypt, were: H. E. Hasseltine, M.D., Victor G. Heiser, M.D., James A. Doull, M.D., and George M. Saunders, M.D.

N.O.P.H.N. INSTITUTES

THE National Organization for Public Health Nursing has planned a series of Institutes for the Saturday and Sunday just prior to the Biennial Convention to be held in Kansas City, Mo., April 24–29. The following subjects will be covered at individual institutes:

Records and Statistics, Syphilis and Gonorrhea, Maternity, School Nursing, Tuberculosis, and Business and Office Administration.

Attendance at each institute is limited. Registrations stating name, address, positions, N.O.P.H.N. membership, name of institute, and enclosing registration fee of $3.00, should reach the N.O.P.H.N. office, 50 West 50th Street, New York, N. Y., before April 10.

INTERNATIONAL HEALTH BROADCAST

LEADING British and American physicians, 6,000 miles apart, will confer via the radio on a great menace to child health, rheumatic heart disease. This conference, one of the first international broadcasts on health problems, will be heard over the National Broadcasting Company, WEAF and the Red Network, on Monday evening, May 2, at seven thirty o'clock Eastern Daylight Saving Time. Arranged by the American Heart Association, New York City, the conference-broadcast will observe National Child Health Day.

Lord Thomas Jeeves Horder, Physician-in-ordinary to the King of England, will open the conference, speaking from London. Dr. Homer F. Swift of the Rockefeller Institute, New York City, and Dr. T. Duckett Jones of the House of the Good Samaritan, Boston, will then speak from Atlantic City where they will be attending the convention of the American Society for Clinical Investigation. Dr. William J. Kerr, President of the American Heart Association, will take up the discussion from San Francisco.

COLORADO PUBLIC HEALTH ASSOCIATION

IN March, Platt W. Covington, M.D., of Salt Lake City, President of the Western Branch, American Public Health Association, met with the Council of Allied Health and Welfare Associations of Denver to discuss the creation of a Colorado State Public Health Association. It was decided to organize a Colorado Public Health Association from the Allied Association and a constitution was adopted by those present who agreed to stimulate membership in the state and national organization from among those professionally engaged in public health work in Colorado.

INDIAN SERVICE CEREMONIES

DR. W. W. Peter, Medical Director of the Navajo-Hopi Areas, has called attention to the fact that the new United States Indian Service base hospital of 130 beds, costing $450,000, will be dedicated at Ft. Defiance, Ariz., on Monday, June 20. Three days of clinics will follow.

An invitation is extended to physicians and public health workers who might route their return by Ft. Defiance over the Santa Fe Railroad or by transcontinental highway 66, after attending the annual meetings of the Western Branch of the Association in Portland and the American Medical Association in San Francisco. Dr. Peter, whose address is Window Rock, Ariz., offers to arrange tours over the 25,000 square mile reservation, visiting other hospitals and points of scenic and public health interest after the dedication and clinic days.

NATIONAL NEGRO HEALTH WEEK

THE Twenty-fourth annual observance of National Negro Health Week will occur April 3 to April 10, with a special objective for the year, "The Family Doctor's Opportunity in Community Health Service."

As in previous years, the plans for Negro Health Week are under the direction of a national committee cooperating with the United States Public Health Service, Washington. Roscoe C. Brown, D.D.S., is in charge.

TUBERCULOSIS CAMPAIGN IN CUBA

THE Cuban Government has recently allotted $1,000,000 from its lottery funds for a campaign against tuberculosis, the *Health Officer* reports. Clinics are to be established throughout the country for examinations, which will be carried out on every citizen. Edgar Mayer, M.D., and Morton

C. Kahn, Ph.D., of New York, recently visited the island to help establish the first clinics. With Wilson G. Smillie, M.D., New York, they will return periodically to advise on the work, it is said. L'Esperanza Hospital near Havana has been renovated for the care of tuberculous patients and a new hospital is being built near Trinidad.

HEART DISEASE LEADS IN INSURANCE CLAIMS

FOR the 14th year in succession, more money was paid out for deaths from organic heart disease than for any other cause of death. The huge sum so disbursed last year ($29,500,000, in round numbers) represents 17 per cent, or more than one-sixth of the total death claim payments of the company. The per cent of the total paid out year by year for deaths from cardiac conditions has been increasing almost continuously. Both physicians and public health workers know that a good share of the heart disease cases which result fatally year after year could be prevented or postponed, namely those of chronic endocarditis, which have their origin, very often, in the infectious diseases of childhood, in acute rheumatism and in syphilis. . . .

In addition to the death claim disbursements on account of cardiac diseases, close to $21,000,000 was paid out in 1937 for 2 nearly related conditions, chronic nephritis and cerebral hemorrhage. These diseases often occur concurrently with heart disease. Thus the 4 principal cardiovascular-renal impairments combined were responsible for about $40 out of every $100 disbursed for all death claims last year.

Cancer ranked second in importance among all the causes of death and accounted for nearly 12 per cent of all the money paid out in death claims. Ten years ago it was responsible for a little more than 9 per cent. It is interesting to note also that in 1927 the company disbursed more money on account of tuberculosis than on account of cancer, whereas in 1937 disbursements for cancer totaled two and one-third times those for tuberculosis. . . .

Tuberculosis ranked eighth, with claim payments of $8,720,000. Tuberculosis is an outstanding example of a disease that is yielding steadily to an efficiently organized and administered movement for control. . . . Within that period (10 years) the per cent paid out has dropped from 10.3 to 5.0, and the actual sum disbursed in 1937 was lower than in 1927 by nearly $1,700,000, despite the fact that lives of policy holders exposed to risk have increased within these years by more than 4,000,000. . . . —*Stat. Bull.*, Metropolitan Life Ins. Co. Feb., 1938.

MEDAL AWARDED DR. SCHICK

THE medal of the New York Academy of Medicine has been awarded to Dr. Bela Schick, who originated the Schick Test 25 years ago.

Dr. Schick, who is a native of Hungary, is a graduate of the Medical School at Graz, Austria. Since 1923 he has been Pediatrician-in-chief at Mt. Sinai Hospital. He is also Clinical Professor for Diseases of Children at Columbia University.

GEORGIA COUNTY UNITS

FIVE new county departments of health were recently opened in Georgia, and two additional counties will be opened as units as soon as qualified commissioners of health can be secured.

New Commissioners have been appointed as follows:

Dr. Henry T. Adkins—Bleckley County
Dr. Harry E. McTyre—Bulloch County
Dr. Roy L. Johnson—Coffee County
Dr. Johnnie L. Gallemore—Dodge County
Dr. John L. Dorough—Walton County

MISSISSIPPI HEALTH LIBRARY

THE Mississippi State Board of Health, Jackson, Miss., announces a gift of over 1,200 volumes to the Medical and Public Health Library, from Dr. W. A. Evans, of Aberdeen, Miss., for many years Health Officer of Chicago.

The Mississippi State Board of Health library was started about 2 years ago, with 5,000 volumes.

NATIONAL HEALTH COUNCIL OFFICERS

NEW officers of the National Health Council, New York, N. Y., for 1938, are announced as follows:

President—Professor Ira V. Hiscock, Yale University, New Haven, Conn.

Vice-President—Dr. Walter Clarke, A.S.H.A., New York, N. Y.

Secretary—Dorothy Deming, N.O.P.H.N., New York, N. Y.

Treasurer—Frederick Osborn, American Eugenics Society, New York, N. Y.

Reëlected to the Board of Directors for a three-year term are: Donald B. Armstrong, M.D., whose term as President has just expired: Professor M. A. Bigelow, Kendall Emerson, M.D., Livingston Farrand, M.D., Homer Folks, Stanley H. Osborn, M.D., and William F. Snow, M.D. Dr. H. N. Marvin was elected delegate at large.

NEW OFFICERS OF NORTHERN CALIFORNIA PUBLIC HEALTH ASSOCIATION

AT its last annual meeting on February 19, 1938, the Northern California Public Health Association elected the following officers:

President—Ida May Stevens, San Francisco

President-Elect—Louis Olsen, Palo Alto

Vice-President—Dr. H. E. Bingham, Woodland

Treasurer—Helen Hartley, Stockton

Secretary—Dr. I. O. Church, Oakland

Representative to the Regional Board of the Western Branch, A.P.H.A.—Dr. H. L. Wynns, San Francisco

Representative on A.P.H.A. Governing Council—Dr. Fred T. Foard, San Francisco

SOUTHERN CALIFORNIA PUBLIC HEALTH ASSOCIATION ELECTS NEW OFFICERS

NEW officers of the Southern California Public Health Association, elected at its last annual meeting on January 31, 1938, are as follows:

President—Dr. G. E. McDonald, Long Beach

President-Elect—Dr. Alex M. Lesem, San Diego

First Vice-President—Dr. Wilton L. Halverson, Pasadena

Second Vice-President—Dr. C. Morley Sellery, Los Angeles

Secretary-Treasurer—Dr. R. L. Kaufman, Whittier

INDUSTRIAL PHYSICIANS MEETING

THE meeting of the American Association of Industrial Physicians and Surgeons will be held concurrently with the Midwest Conference on Occupational Diseases, at the Palmer House, Chicago, Ill., June 6–9.

PERSONALS

Central States

DR. CHARLES ALBERT ARNESON, of Bismarck, N. D., has been named Health Officer of Bismarck.

CHARLES H. P. G. BENNING, M.D., C.P.H.,* of Peoria, Ill., has been appointed District Health Officer of Royal Oak, Mich., a position he held prior to his appointment as School Physician in Peoria.

BENJAMIN LIEBERMAN, M.D.,† has been appointed head of the School Hygiene Division of the Milwaukee Department of Health, to succeed the late GEORGE P. BARTH, M.D.*

DR. JOSEPH F. MICHAELS, of Loogootee, Ind., has been appointed Health Officer of Marion County.

DR. ERNEST V. NOLT, of Columbia City, Ind., has been appointed Health Officer of Whitley County.

* Fellow A.P.H.A.
† Member A.P.H.A.

DR. JOHN R. PENCE, of Minot, N. D., has been appointed Health Officer of Ward County.

HOWARD J. SHAUGHNESSY, PH.D.,† formerly with the Department of Bacteriology and Public Health of the University of Illinois College of Medicine, has been appointed Associate Professor of Bacteriology and Public Health in the University of Colorado, Denver. He succeeds SEVERANCE BURRAGE, PH.D.,* who has retired.

Eastern States

LEAH M. BLAISDELL, R.N.,* formerly Educational Supervisor, Division of Public Health Nursing, New York State Health Department, has joined the staff of the Henry Street Visiting Nurse Service, New York, N. Y., as Educational Director.

DR. EUGENE N. COZZOLINO has been appointed Health Officer of West Haven, succeeding the late DR. CHARLES E. KAUFMAN.†

JOHN S. CUNNINGHAM, M.D.,† formerly Epidemiologist in the Connecticut State Department of Health, has been appointed District Health Officer in charge of Livingston, Monroe, and Wayne Counties, New York.

J. J. GOLUB, M.D.,† Executive Director of the Hospital for Joint Diseases of New York, has been appointed by Governor Herbert H. Lehman to the Saratoga Springs [N. Y.] Authority.

DR. HOWARD R. HANSELL has been appointed Health Officer of Sharon, Conn., during the absence of DR. JEROME S. CHAFFEE.†

MARY R. LAKEMAN, M.D.,* of Boston, Mass., has been appointed Northeastern Regional Director for the Women's Field Army of the American Society for the Control of Cancer. Dr. Lakeman retired December 1, 1937, from the Massachusetts Department of Public Health, with which she had been associated for 20 years in child and adult hygiene work.

E. V. MCCOLLUM, PH.D.,* Professor of Biochemistry and head of the Department at the School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Md., received the degree of Doctor of Laws at a special convocation recently at the University of Manitoba.

DR. WINFRED OVERHOLSER has been appointed Superintendent of St. Elizabeths Hospital, Washington, D. C.

DR. ERNEST R. PENDLETON has been appointed Health Officer of Granby, Conn.

J. H. SHRADER, PH.D.,* has been elected President of the Metropolitan Dairy Technology Society, New York, N. Y.

DR. A. STAMPAR, of the staff of the Health Committee, League of Nations, Geneva, and formerly the Director of Health of Yugoslavia, recently delivered a DeLamar lecture on hygiene at Johns Hopkins on the subject, "International Health Work."

Southern States

ASA BARNES, M.D.,† has been transferred by the Missouri State Health Department from District No. 3 (Kennett, Mo.), to open up a new district, District No. 6, composed of 14 counties in southwest Missouri; his address is District Health Department, Ozark, Mo.

JOHN B. H. BONNER, M.D.,† of Stony Creek, Va., Health Officer of Sussex County, has been appointed Director of a new health district in Prince George County, with headquarters in Hopewell.

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* Fellow A.P.H.A.
† Member A.P.H.A.

ROBERT P. COOKE, M.D.,† of Lexington, Va., is Health Officer of Botetourt County, which has recently joined the Alleghany-Rockbridge Health Department thus forming a 3-county district. The office of the Assistant Health Officer, JAMES H. GORDON, M.D., is located at Covington, Va.

WILLIAM W. FULLER, M.D.,† of Christiansburg, Va., has been appointed Health Officer of Montgomery County.

ARTHUR H. GRAHAM, D.P.H., M.D.,† has been appointed Medical Director of the new district health unit established for the counties of Bullock, Chambers, Lee, Macon, Randolph, Russell, and Tallapoosa, Ala. Headquarters will be in Opelika, Ala. This is a coöperative enterprise between the Alabama State Department of Health and the Commonwealth Fund of New York.

J. B. IVY, M.D., is the new Director of the district health unit for Bradley, Lincoln and Cleveland Counties, with headquarters in Warren, Ark.

DR. EDWARD V. JONES, JR., has been appointed Assistant Health Officer of the Arlington County, Va., Health Department.

RUSSELL H. LYNCH, M.D., of Hollis, has been appointed Health Officer of Harmon County, Okla.

DR. H. B. MAGILL, JR., formerly Health Officer of the Hanover County Health Department, has resigned to enter private practice in Tappahannock, Va.

DR. RUFUS F. PAYNE † has been appointed Assistant Director of County Health Work in the Georgia State Department of Health. Dr. Payne was formerly Commissioner of Tift County, where he has been succeeded by DR. ROBERT H. HARALSON, JR.†

DR. JAMES M. SUTER, of Washington, D. C., has been appointed Health Officer of Lee County, Va.

Western States

DR. ROBERT E. AUSTIN has been appointed Health Officer of Coronado, Calif., to succeed DR. RAYMOND SPEAR.

DR. JAMES W. CREVER, JR., of Susanville, Calif., has been appointed Health Officer of Lassen County, Calif., to succeed DR. CLARENCE I. BURNETT.

DR. WILLIAM R. HICKS is the new Health Officer of the Multnomah County, Ore., health unit.

WENDELL A. JONES, M.D.,† of Riverside Calif., has been appointed to take charge of the administration of the public health affairs of the city of Banning, under the Riverside County Health Department.

Canada

DR. NORMAN MACL. HARRIS * retired on superannuation, April 1, from the position of Chief of the Laboratory of Hygiene, Department of Pensions and National Health, Ottawa, Canada.

Foreign

DR. WU LIEN-TEH has retired after 30 years' continuous service, from 1907 to 1937. He was Vice-Director of the Army Medical College (China) from 1908 until 1910, when the Manchu Government sent him to take charge of the Manchurian Plague Prevention Service. In 1930 the Government decided to organize a modern Quarantine Service and Dr. Wu was made Director. He served as head of the Plague Prevention Service for 20 years and of the Quarantine Service for 7½ years.

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* Fellow A.P.H.A.
† Member A.P.H.A.

CONFERENCES AND DATES

American Academy of Tuberculosis Physicians. San Francisco, Calif. June 13–14.

American Association for Social Security. New York, N. Y. April 8–9.

American Association of Industrial Physicians and Surgeons—23rd Annual Meeting; and Second Annual Midwest Conference on Occupational Diseases. Palmer House, Chicago, Ill. June 6–9.

American Association of Medical Social Workers. Seattle, Wash. June 26–July 2.

American Association of Pathologists and Bacteriologists. Atlantic City, N. J. May 3–4.

American Association of Psychiatric Social Workers. Seattle, Wash. June 26–July 2.

American Association of Social Workers—Joint Meeting with American Association of Schools of Social Work, and National Conference of Social Workers. Seattle, Wash. June 26–July 2.

American Association of the History of Medicine. Atlantic City, N. J. May 2.

American Association on Mental Deficiency—62nd Annual Meeting. Hotel Jefferson, Richmond, Va. April 20–23.

American Chemical Society. Dallas, Tex. April 18–21.

American Federation of State, County, and Municipal Employees. Atlanta, Ga. August 29.

American Heart Association. Sir Francis Drake Hotel, San Francisco, Calif. June 10–11.

American Dental Association. St. Louis, Mo. October.

American Dietetic Association—21st Annual Meeting. Hotel Schroeder, Milwaukee, Wis. October 9–14.

American Home Economics Association—31st Annual Meeting. William Penn Hotel, Pittsburgh, Pa. June 28–July 1.

American Medical Association. San Francisco, Calif., June 13–17.

American Nurses Association. Hotel President, Kansas City, Mo. April 24–29.

American Public Health Association — 67th Annual Meeting. Hotels Muehlebach, President, Kansas Citian, Kansas City, Mo. October 25–28.

American Public Welfare Association—Joint Meeting with National Conference of Social Workers. Seattle, Wash. June 26–July 2.

American Society of Planning Officials. Joint Conference with American Planning and Civic Association, and American City Planning Institute. Minneapolis, Minn. June.

American Veterinary Medical Association. New York, N. Y. July 5–9.

American Water Works Association—Annual Meeting. Hotel Roosevelt, New Orleans, La. April 24–28.

American Water Works Association.

Montana Section. Baxter Hotel, Bozeman, Mont. May 13–14.

Pacific-Northwest Section. Davenport Hotel, Spokane, Wash. May 19–21.

Florida Section. Daytona Beach, Fla. May 23–25.

New Jersey Section. Hackensack Water Company Plant, New Milford, N. J. May 25.

Arizona Public Health Association. Tucson, Ariz. April 19–20.

Association of American Physicians. Atlantic City, N. J. May 3–5.

Association of Military Surgeons of the United States. Mayo Clinic, Rochester, Minn. October 13–15.

Better Parenthood Week. Sponsored by The Parents' Magazine in cooperation with the U. S. Children's Bureau. May 1–7.

California Association of Health, Physical Education and Recreation. Pasadena, Calif. April 18–19.

California Conference of Social Work. Pasadena, Calif. April 24–28.

Child Health Day, National. May 1.

Conference of State and Provincial Health Authorities of North America. Washington, D. C. April 9–11.

Congress of American Physicians and Surgeons. Atlantic City, N. J. May 2–6.

Congress of Parent-Teachers Association. Battle Creek, Mich. April 20–22.

Connecticut Public Health Association. Hartford, Conn. May.

Georgia Public Health Association. Atlanta, Ga. May.

Governmental Research Association. Princeton, N. J. September 7–10.

Hawaii Territorial Medical Association. Honolulu, T. H. May

Health and Accident Underwriters Conference. Chicago, Ill. May 24–26.

Health Officers and Public Health Nurses—Annual Conference. Under the Auspices of the New York State Department of Health. Saratoga Springs, N. Y. June 22–24.

Hermann Michael Biggs Lecture—Annual. Subject, "Virus Diseases," Speaker, Thomas M. Rivers, M.D. New York Academy of Medicine, New York, N. Y. April 8.

International Association for Dental Research. Minneapolis, Minn. May 12–13.

International Association for Identification. Columbus, Ohio. August 16–20.

International Association of Medical Museums, American and Canadian Section—with American College of Physicians and Surgeons. Atlantic City, N. J. May 2.

Iowa Public Health Association. Des Moines, Ia. May.

Manufacturing Chemists Association of the United States. Sky Top, Pa. June 2–3.

Medical Library Association. Hotel Somerset, Boston, Mass. June 28–30.

Medico-Military Inactive Duty Training Unit—under auspices of the Mayo Foundation. Mayo Clinic, Rochester, Minn. October 13–15.

Michigan Public Health Association. Lansing, Mich. November 9–11.

Mississippi Valley Conference on Tuberculosis. St. Louis, Mo. October 1–3.

Missouri Public Health Association. Jefferson City, Mo. May 13–14.

Mothers' Day. May 8.

National Biennial Nursing Convention. Hotel President, Kansas City, Mo. April 24–29.

National Conference of Social Workers—Joint Meeting with American Association of Schools of Social Work, and American Association of Schools of Social Work. Seattle, Wash. June 26–July 2.

National Education Association. New York, N. Y. June 26–30.

National Hospital Association (Negro). Hampton, Va. August 14–16.

National League of Nursing Education. Hotel President, Kansas City Mo. April 24–29.

National Negro Health Week (24th annual observance). Theme: The Family Doctor's Opportunity in Community Health Service. April 3–10.

National Organization for Public Health Nursing. Hotel President, Kansas City, Mo. April 24–29.

National Tuberculosis Association. Biltmore Hotel, Los Angeles, Calif. June 20–23.

New Mexico Public Health Association. Albuquerque, N. M. June.

New York State Association of Public Health Laboratories—22nd Annual Meeting. Mary Imogene Bassett Hospital, Cooperstown, N. Y. May 23.

New York State Department of Health—Annual Conference. Saratoga Springs, N. Y. June 28–30.

New York State Sewage Works Association—Fall Meeting (joint meeting with New England Sewage Works Association). Hotel Bond, Hartford, Conn. October 6–8.

New York State Sewage Works Association—Spring Meeting. Buffalo, N. Y. June 3–4.

Ohio Federation of Public Health Officials. Columbus, Ohio. April 29.

Pennsylvania Public Health Association. Harrisburg, Pa. May.

Smoke Prevention Association. Nashville, Tenn. May 17–20.

Social Work Publicity Council. Seattle, Wash. June 26–July 2.

South Carolina Public Health Association. Myrtle Beach, S. C. May 23–25.

State and Provincial Health Authorities of North America—Annual Meeting. Washington, D. C. April 9–11.

State and Territorial Health Officers Conference with the Surgeon General. Washington, D. C. April 11–12.

Texas Public Health Association. San Antonio, Tex. November 7–9.

Third International Congress for Microbiology. Waldorf-Astoria Hotel, New York, N. Y. September 2–9, 1939.

Western Branch, American Public Health Association. Hotel Multnomah, Portland, Ore. June 6–8.

FOREIGN

Industrial Accident Prevention Associations, Inc. Windsor, Ont., Canada. April 28–29.

International Association of Public Employment Services. Ottawa, Ont., Canada. May 26–28.

Ontario Health Officers' Association. Chateau Laurier, Ottawa, Ont., Canada. June 17–19.

Canadian Public Health Association. Lord Nelson Hotel, Halifax, N. S., Canada. June 20–22.

Royal Sanitary Institute. Portsmouth, England. July 11–16.

Scientific Congress of Doctors and Dentists—"ARPA." Prague, Czechoslovakia. July 21–25.

International Medical Society for Psychotherapy—10th Annual Congress. Balliol College, Oxford. England. July 29–August 2.

British Dental Association. Belfast, Ireland. July 29–August 3.

International Meeting for Cell Research. Anatomical Institute, Zurich, Switzerland. August 7–13.

International Congress on Housing and Town Planning. Mexico City, Mexico. August 13–20.

Sixteenth International Physiological Congress. Zurich, Switzerland. August 14–18.

British Association for the Advancement of Science. Cambridge, England. August 17–24.

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